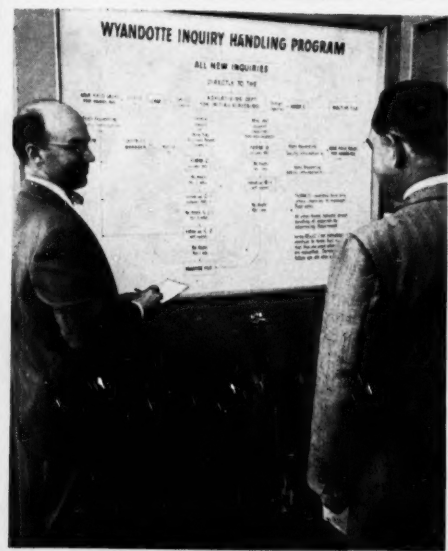


Chemical Week

May 23, 1953

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Acquire, be acquired, or not?
There's good sense behind recent
chemical mergers p. 16

► Many a slip 'twixt test tube
and textile; hence the big push
in fiber evaluation p. 38

Oxidation vs. chlorhydrin; the
former's forging ahead in the
ethylene oxide tussle p. 46

Civilians need more, military
takes more; that's why toluene
may get tighter p. 59

► Here's how one chemical firm
gleans business-prospect wheat
from inquiries chaff p. 72



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Chemical Week (including Chemical Specialties and Chemical Industries) is published weekly by McGraw-Hill Publishing Company, Inc. James H. McGraw (1860-1948), founder. Publication Office: 1309 Noble St., Philadelphia 23, Pa.

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions to Chemical Week are solicited in the chemical and process industries from management men in administration, research, production and distribution. Position and company connection must be indicated on subscription order. Address all subscription communications to Chemical Week Subscription Service, 1309 Noble St., Philadelphia 23, Pa., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Single copies 35¢. Subscription rates—United States and Possessions \$5.00 a year; \$8.00 for two years; \$10.00 for three years. Canada \$6.00 for a year; \$10.00 for two years; \$12.00 for three years. Other Western Hemisphere Countries \$15.00 a year; \$25.00 for two years; \$30.00 for three years. All other countries \$25.00 a year; \$40.00 for two years; \$50.00 for three years. Entered as second class matter December 20, 1951, at the Post Office at Philadelphia 23, Pa., under the act of March 3, 1879. Printed in U.S.A. Copyright 1953 by McGraw-Hill Publishing Co., Inc.—All rights reserved.

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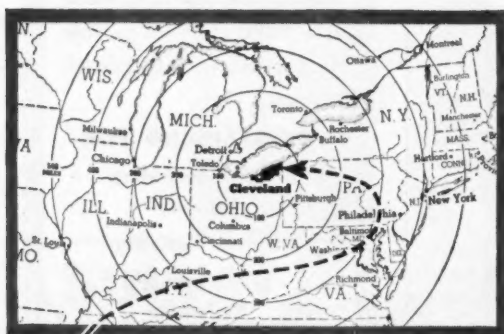
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OPINION

Two Additive Pros

TO THE EDITOR: It is only a short time ago that . . . the conduct of your Justice Dept. and your Internal Revenue Bureau resulted in scandals that shook the country. Many of the men who brought reproach upon these departments held L.L.B. and other degrees.

A new controversy has arisen involving the National Bureau of Standards . . . which sits in judgment over great segments of the industry of this country. Some of the men involved in the present National Bureau of Standards controversy on our battery additive hold Ph.D.'s and other degrees. In both cases the men involved are only human.

After five years of obstruction and flagrant disregard of fact by the NBS, we still believe . . . it is a necessary agency . . . that many great scientists are employed there. Many of these scientists, as well as other scientists throughout the U.S., have been misinformed on the entire subject of our battery additive. . . .

. . . By their own admission they never tested our additive until 1950 . . . and then only in one battery. . . . Again, in 1952, NBS, on equally unscientific tests, was instrumental in having the Post Office Dept. issue a mail fraud order against us, without a vestige of evidence of fraud. . . .

Yes, this is your National Bureau of Standards, too.

JESS M. RITCHIE
President
Pioneers Inc.
Oakland, Calif.

TO THE EDITOR: In the controversy that has raged re the battery additive, AD-X2, there has been a tendency for the main issue to become obscured, and attempts have been made to make it appear that the question of political influence is involved. The main issue is surely: were those members of the NBS staff . . . testing additives completely objective in their investigations? . . .

There is a vast amount of testimonial evidence to the value of AD-X2 as a means of increasing the lives of lead-acid storage batteries. There are also a considerable number of scientific tests . . . which show a very significant favorable effect. The bureau staff, however, have maintained a degree of skepticism with regard to these . . . and pointed out that if the material was valuable it should be possible for them to demonstrate this by careful experimental

work in their own laboratories.

With this attitude there can be no quarrel; but . . . in view of the positive evidence available, the contrary view that the material was worthless . . . could only be maintained by the bureau if it had carried out exceedingly careful experiments on a wide scale. Let us see what work the bureau actually did on this problem, and what its stand has been. . . .

1. Prior to the summer of 1952 the only work on AD-X2 that the bureau had ever claimed to have done was a single test in *one* battery. . . . A test in a single battery is obviously not adequate for an uncompromising rejection of the product. . . . Yet, we find that on Apr. 5, 1950, the then director of the bureau wrote to the National Better Business Bureau:

" . . . it is now possible to say that the results show no benefit from the use of these additives, including AD-X2." . . .

2. By the fall of 1952 the bureau's position was a shade stronger, but still quite untenable. A much more detailed test . . . had been carried out, and the bureau concluded . . . that any differences between treated and untreated cells were statistically insignificant. The interesting point is that some differences, favorable to AD-X2, were observed, but were considered to be too small to have any meaning. It is evident . . . that it would be dangerous to conclude from this that the material was worthless even if the experiments had been carried out with the greatest of care.

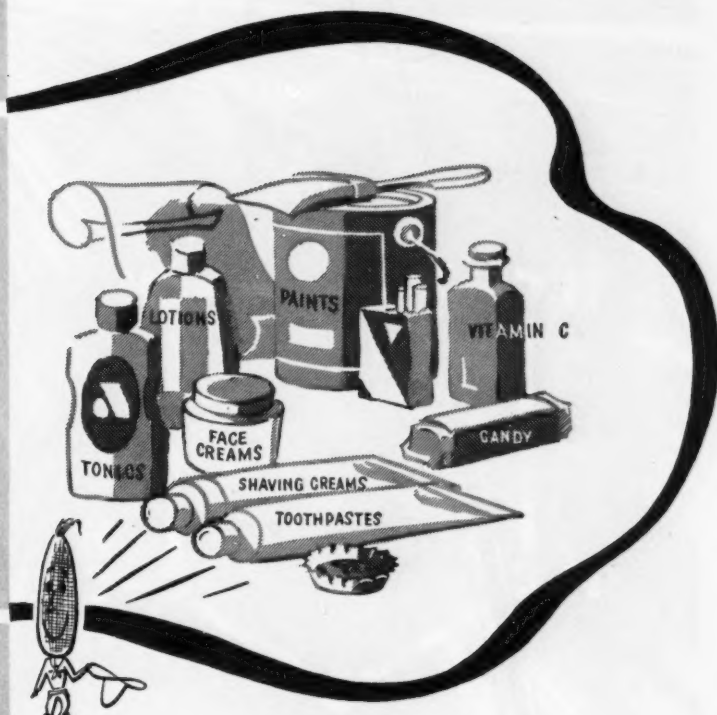
Study of the report, however, reveals a number of serious deficiencies; readings taken two hours apart were treated as simultaneous; voltage readings and water losses were not reported; no statistical treatment was given of the experiments as a whole, but only of narrow groups of readings. Moreover . . . damp cloths were placed around the batteries . . . to reduce temperature differences. The hydrometer readings were allowed to rise abnormally high so that the effect of the additive was diminished.

These weaknesses have all been pointed out to the bureau staff; in spite of this, however, and in spite of

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

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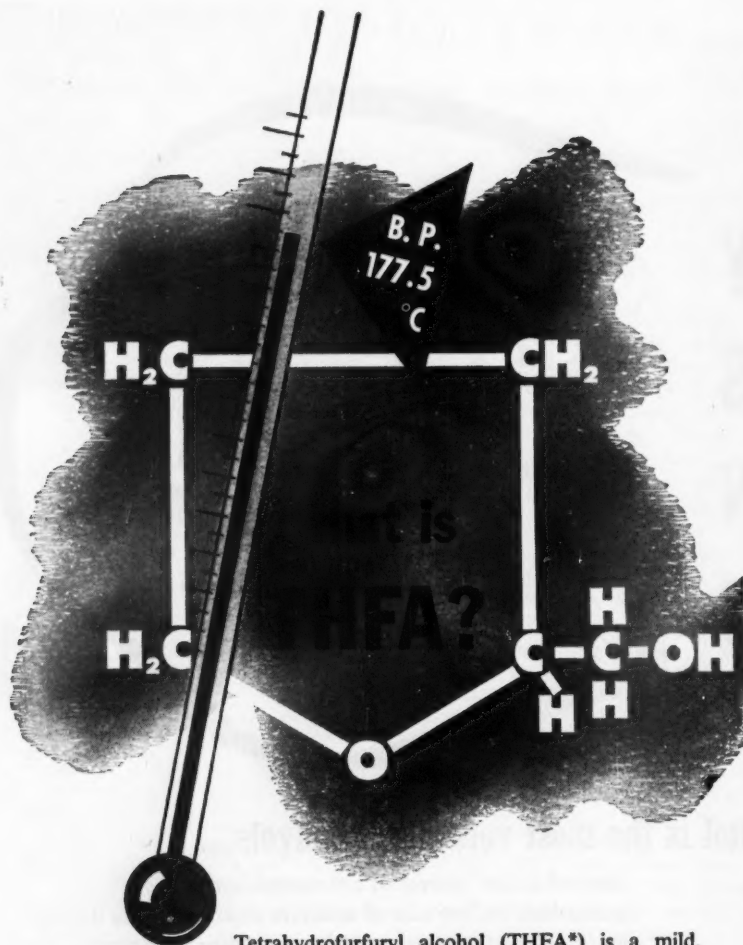
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Write for Technical Bulletin 87-B



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OPINION

all the other evidence, they persist in considering that their test had proved conclusively that AD-X2 is worthless.

3. We finally come to Massachusetts Institute of Technology tests, the significance of which has been somewhat misunderstood. MIT carried out a . . . series of . . . experiments, of a somewhat different nature from those performed by the bureau, and obtained . . . significant effects of exactly the character that had been predicted . . . by those of us who believed in the value of the product. The great importance of the MIT results is not that, when standing alone, they attest to the commercial value of the product; it is that, when considered side by side with the testimonial evidence and the earlier tests, they remove any misgivings one may have had. . . .

An exceedingly cautious and skeptical person might still not be prepared to go further than to say that a *prima facie* case had been made for AD-X2; most of us would say that the matter was effectively settled.

But to say, in the face of the MIT evidence . . . that the material is worthless, is utterly unreasonable. Yet on Oct. 13, 1952, after preliminary MIT results had been made known to them, several members of the bureau testified at a Post Office Dept. fraud hearing that AD-X2 was worthless. It is difficult to recognize that such action was consistent with an objective scientific approach. . . .

In Dec. '52 the writer prepared, at the request of the Senate Small Business Committee, a background statement . . . the main purpose of which was to present a summary of the MIT results. This statement, which clearly represented only one individual's opinion on the matter, has been given considerable publicity. None of the criticisms leveled at this background statement bear on the main thesis, which is, that the evidence indicates overwhelmingly that AD-X2 is effective. Charges that the writer has 'overinterpreted' the MIT work fail to acknowledge the fact that, as explained above, the MIT work must be regarded not by itself but in relation to the other work, to which it renders full credence. . . . Finally it should be emphasized that although the committee's report was issued over four months ago, no one has come forward with a counter statement, in which all of the evidence is presented, assessed, and the conclusion drawn that the evidence shows conclusively that the material is worthless. If such a statement could be made it would surely have been made by now; the

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OPINION

reason it has not been is simply that the task is an impossible one.

The NBS has long and rightfully enjoyed a position of the highest prestige among scientists and the general public. Its work is known and respected; it numbers among its staff many men of the highest reputations.

Apart from the work on additives, the author has found no cause to be critical of the NBS work . . . In no instance, and the additive case is no exception, does he have reason to doubt the integrity of the staff.

In connection with the testing of additives, however, he cannot fail to conclude that the small group of scientists involved have allowed their preconceived notions to cloud their judgment and to condemn a product against which even the most skeptical would say the case was "not proven."

The three main facts outlined above are matters of record, and can be checked by anyone. . . . Scientists would do well to acquaint themselves with the facts regarding the bureau's attitude to the additive before passing judgment on the Secretary of Commerce's action; the cry of political pressure is merely a smoke-screen being used to obscure the true issue.

KEITH J. LAIDLER
Washington, D.C.

Juggling Figures

TO THE EDITOR: I noticed the rather good letter on tariffs by Dr. Cary Wagner (Apr. 18) which, by and large, expresses my own views—particularly the statement regarding the review of our tariff laws by competent and informed experts.

However, there is one statement . . . in the letter that I think is a little misleading: "On the average, duties assessed on imports into the U.S.A. are lower than for almost any other country on the globe."

A consideration of tariffs on an average basis does not give a true picture of the situation, any more than one obtains the full significance of the excess profits tax by taking the total tax collected and dividing by the total population of the United States.

By this method, the tax is insignificant, but to the relatively few corporations paying excess profits taxes, it is an entirely different matter. Similarly, the U.S. tariffs on Canadian chemicals entering the U.S. are a very real deterrent to the development of the chemical industry in Canada. . . .

R. S. JANE
Vice-President
Shawinigan Chemicals, Ltd.
Montreal, Can.



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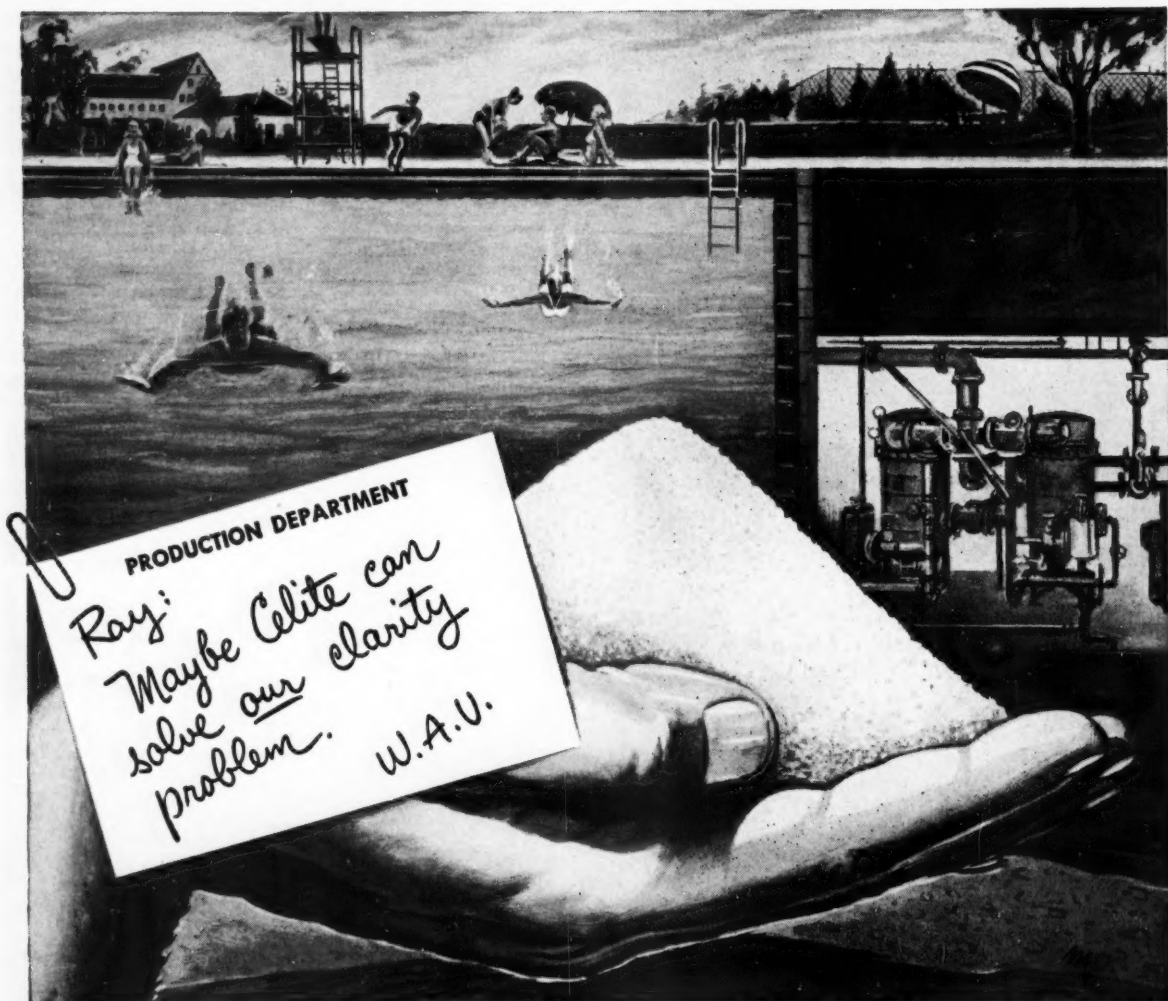
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NEWSLETTER

Put another spoke in the new Calvert City, Ky., chemical hub (CW, Apr. 18): It's an \$8.5-million acrylonitrile plant for B. F. Goodrich Chemical. Annual capacity will be 24 million lbs.

The location is a natural, of course, since Goodrich is already buying acetylene via pipeline—for vinyl chloride monomer—from the adjacent Air Reduction plant.

The process Goodrich will use is its own, one the company has been quietly pilot-planting for two years at its Avon Lake, O., plant. It claims the new method is superior to those in existing or abuilding installations.

For years, Goodrich has bought acrylonitrile in large quantities (from American Cyanamid) to make its Hycar oil-resistant rubber. It's questionable whether Goodrich's requirements for that use will consume the entire plant output, but the company has not yet tipped its hand as to markets or captive uses envisioned. (Synthetic textiles have been the main spur to expansion by Cyanamid, Monsanto and Carbide, with nitrile rubber, plastics and soil conditioners playing important but lesser roles.)

This new move at Calvert City shows the chain-reaction character of the chemical industry that is clear to insiders but a little difficult for laymen to comprehend. But a move toward better understanding was under way at Rensselaer Polytechnic Institute at a two-day conference last week "to study the impact of the chemical industry on the modern economy."

Some 600 social science teachers, 100 magazine, newspaper and text book writers, and 150 top executives heard industry leaders William Ward (Du Pont), Leland Doan (Dow), Earl Stevenson (Arthur D. Little) and Gen. Brehon Somervell (Koppers) explain the industry's structure, contributions to society, its problems.

While these opinion leaders went away with a clearer understanding of the "mysteries" of the chemical industry, they also carried a somber thought from Gen. Somervell: Should we reassess our policy prohibiting gas warfare in the light of Russian advances in that field?

Not everywhere, however, were chemical companies being treated as kindly as at the RPI conference. Some examples:

- Beaumont, Tex., officials decided to appeal to state authorities for help in meeting a long-standing fume problem, allegedly caused by Magnolia Petroleum, Texas Gulf Sulphur, and Mathieson Chemical plants. This followed a meeting with company representatives who averred their plants were not the source of the trouble.
- Civic groups in Sellersville, Bucks County, Pennsylvania, demanded that the state halt American Cyanamid's construction of an explosives storage dump near a public school. This was despite prior state approval of the site, and assurance that the materials were of non-high-explosive commercial variety.
- Southwest Philadelphia residents protested U.S. Gypsum Co.'s construction of a ship unloading station along the Schuylkill River in that section. The firm claims it can't unload at its upstream plant because the channel isn't deep enough.

Skeptics had their innings this past week. Dr. Harold Hillenbrand, secretary of the American Dental Assn., cautioned that chlorophyll and ammoniated toothpastes hadn't lived up to their promises, couldn't be counted on to take the place of normal dental care. "There is no miraculous green, white, red or any other color toothpaste that will magically prevent tooth decay," he said. (Also see p. 76).

And Dr. Robert J. Anderson of the U.S. Public Health Service similarly threw tepid water on anti-TB claims for isoniazid, said the drug "had not come up to the high hopes many once held for it. Some of the patients who a year ago were pictured dancing in their wards have since died." He nevertheless conceded that the drug is a weapon against tuberculosis, expressed his conviction that new and better drugs will come along.

Eastman Kodak has made it official. Long known (CW, March 21) to be planning entry into the polyethylene field, the company confirmed last week the fact that it had signed a license agreement with Imperial Chemical Industries, Ltd., which controls the basic patents.

Eastman will start plant construction early this summer, will produce 20 million lbs./year. Texas Eastman will operate the plant, Eastman Chemical Products will sell the product.

Grist for Dacron fiber and Maylar film mills will be provided by Standard Oil of Indiana's proposed para-xylene plant. Construction of the 14 million lbs./year plant at Whittings, Ind., will be finished by Jan. 1, '55.

Standard will separate the xylene isomer from a mixture of aromatic hydrocarbons made by hydroforming petroleum fractions.

Now it's "chlortetracycline." That's the name that is substituted in the Federal Foods, Drug and Cosmetic Act for aureomycin in a bill (S. 1866) introduced in the Senate last week by Irving Ives and simultaneously in the House by Rep. St. George (R., N.Y.).

Passage of the bills would remove a thorn from the flesh of Lederle Laboratories, maker of the antibiotic: foreign producers are misusing the older name on their own products.

Further news from Washington points up a gigantic sales opportunity from makers of chemical process equipment: treating municipal sewage. Says a report of the U.S. Public Health Service, only \$137 million was spent by 515 communities during 1952 for such facilities, compared with the \$450-500 million that should be spent annually for 10 years to bring municipal pollution under reasonable control. The 1952 expenditure was the lowest since 1948, and even less than the 1915-50 average.

A well-drawn statistical picture of the research scientist will be of special help to research directors. A report ("Occupational Mobility of Scientists," BLS Bull. 1121, G.P.O., 35¢) prepared by the Dept. of Labor in cooperation with the office of Naval Research shows:

- Ph. D's are mobile—four-fifths had worked in two states, two-fifths in three or more—and thus location is not a pertinent factor in choosing a research site.
- Most of them had shifted not only from one employer to another and from one scientific specialty to another, but also from one type of work—teaching, research, administration, etc.—to another.

Implication: there are far more people qualified to do research than are currently doing it.

. . . The Editors



SMOKE BLOWN THROUGH a Norton ALUNDUM* *seamless* tube escapes throughout the tube's entire area. Such a tube gives most efficient filtration and ease of cleaning by back washing. When selecting tubes for your specific application be sure they embody this important feature.

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POROUS MEDIUMS

Making better products to make other products better

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Why Norton seamless tubes give you better filtration

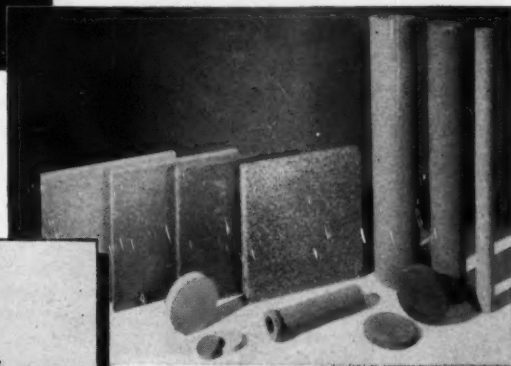
Only Norton ALUNDUM tubes have the seamless construction that means more uniform filtration and enables faster, more thorough cleaning. And like all Norton porous mediums they're made with the patented *controlled structure* process that assures even distribution of pores — in the size and open-pore ratio that best meets your needs.

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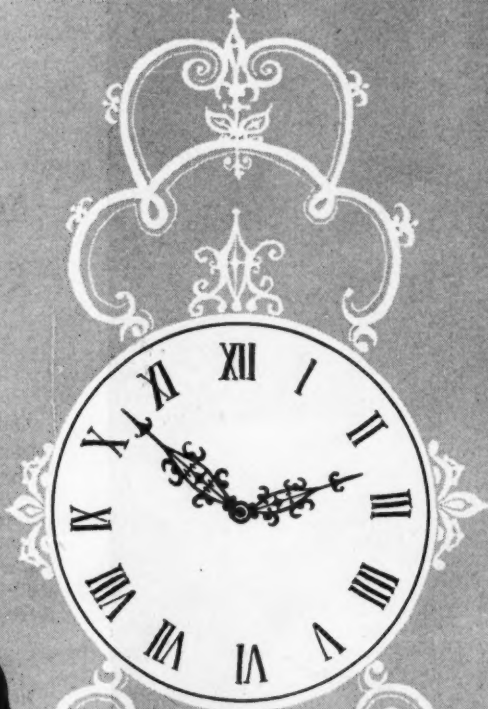
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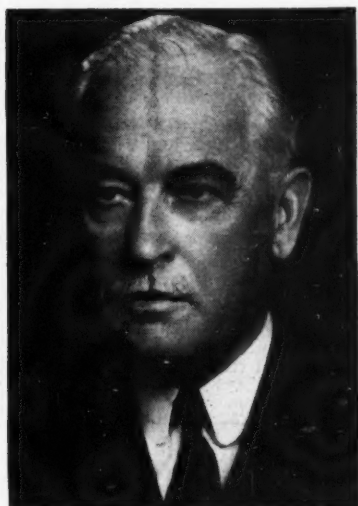
Fast on the heels of its decision to produce Terylene in Canada (CW Newsletter, Apr. 11), Imperial Chemical Industries, London, last week burst loose with news of the incorporation of ICI of Canada, a wholly owned subsidiary.

Although the original Terylene announcement said the plant would be turned over to the ICI-controlled successor company of Canadian Industries Limited when CIL is divided into two separate firms (CW, Jan. 17),

ments are reported to have been completed; money was raised in Canada, approved by the Bank of England.

Due to a strict lid of silence, clamped on disentanglement of Du Pont and ICI by U. S. District Judge Ryan (New York), proposals offered by both companies on the divestiture of CIL have never been revealed. Washington sources will only comment that "the judgment is being carried out—Judge Ryan has tentatively approved proposed terms for the split."

ICI's course, however, seems clear. The initial plunge of ICI of Canada is officially credited as "in accordance with ICI's policy of regarding its latest subsidiary as the normal medium for developing manufactured products in Canada."



ECCLES: Trustee for ICS's Canadian Capital.

later word from ICI was pointedly silent on this issue.

At a board meeting of the new company, James A. Eccles, prominent in Canadian financial and industrial circles, was elected chairman and president. Other directors include Peter Menzies, deputy treasurer of ICI, and Dr. Richard Beeching of ICI's Terylene organization in Great Britain.

First task of the fledgling company: to erect a plant to manufacture Terylene at Millhaven, Ont., estimated to cost over \$20 million. Design and engineering construction management will be undertaken by H. K. Ferguson Co. It is expected that substantial sections of construction work, however, will be let to Canadian firms.

Financing and banking arrange-

Taxpayer Calls Tune

Possible boon for many chemical companies about to splurge on new plant machinery: from here on out, businessmen will have a little more voice in fixing depreciation rates on production equipment. His choice of a rate—providing it's "reasonable"—will stand, unless the Bureau of Internal Revenue proves it's out of line.

This doesn't mean that BIR is throwing away the book it has been using for years; the range of depreciation rates hasn't been changed. But from now on, revenue agents are supposed to accept depreciation deductions unless they are clearly in violation of standard business practices. Bulletin F, the BIR's book of formulas on depreciation allowances, apparently will become merely a broad guide to what is reasonable, instead of being relied on, chapter and verse, by literal-minded tax collectors.

Not Retroactive: Last week's order from BIR Chief T. Coleman Andrews does not permit taxpayers to change rates of depreciation already in effect on particular equipment. But it does apply to any rate dispute not yet decided inside the bureau.

In spelling out the new policy to field agents, Andrews ordered them to keep three operating principles in mind:

- Is the rate used by the taxpayer fair and reasonable?

- Is the rate consistent with the taxpayer's past practices?

- Would adjustments based on standard BIR rates amount to a substantial sum?

If the answer to the third point is "no," then the agent is supposed to accept the taxpayer's schedule, even if it does differ from the rigid formulas used in recent years.

One effect of Andrews' order may be a slow-down of a movement in Congress to write a more flexible depreciation policy into law. It's the first result of a study of basic tax policies being undertaken in the Treasury Dept.

Blow to Bakeries

Out of the loaf and back into the laboratory for another siege of testing goes polyoxyethylene monostearate, the bread softener that the Food & Drug Administration still regards as an unseemly blemish in the staff of life.

Up until last week, numerous bakeries continued to use this softener despite FDA's frown of disapproval, and FDA was powerless because of a temporary order that had been issued by the U.S. Circuit Court in St. Louis (CW, May 9). Then the court erased that order, and FDA promptly pounced on the softener with stern threats and hard words.*

Henceforth, says Commissioner Charles W. Crawford, the FDA ban on this emulsifier, under whatever tradename, will be rigorously enforced "until its fitness and safety as a food ingredient have been shown."

Atlas Powder, which markets the softener as "Myrj-45," and Glyco Products, which uses the tradename "Sta-Soft," aren't throwing in the towel.

Atlas Chairman Isaac Fogg predicts that testing now being done by the National Research Council "will confirm our faith in the safety and integrity of our products," and that "in due course, the FDA will permit Myrj-45 to resume its useful place in bread."

Burden of proof is on the manufacturers, and it appears that they'll need all the proof they can muster to convince Crawford.

* Crawford to a reporter: As bread softeners, polyoxyethylene monostearates would make "good paint removers."

Many Aims . . . One Goal

Summing up the mergers in the chemical industry is like counting rabbits. And the postwar urge to merge is still going strong. Proof: economists for the Federal Trade Commission have recorded an average of 20 chemical mergers and acquisitions per month since 1945.

Otto L. Schweng, director of market research, Climax Molybdenum, thinks the present trend to merge has risen chiefly out of postwar planning. The scrupulous eye of FTC, guarding against monopoly, may put a ceiling on the surge now. The acquiree's asking price is getting higher, good

No single pattern is characteristic of the chemical industry. Recent examples of various possible motives for merger:

- Vertical integration shines through Merck's acquisition of Sharp & Dohme. Merck, with research expenditures of \$5.6 million in 1952, places greatest emphasis on fundamental studies from which major discoveries such as cortisone and vitamin B₁₂ have sprung. Sharp & Dohme, with research expenditures of around \$2 million, emphasizes the applied phase, formulates and improves basic discoveries of others.

itself out profitably from an uncertain market situation.

Rave notices abounded; \$200 million in sales was the estimate for 1953 as a result of the merger. Result to date: net sales for the first quarter were over \$60 million—an increase of 13.5% over combined sales in the first three months of 1952.

Squibb, meanwhile, had solved a thorny management problem, had strengthened its managerial and raw materials positions. Both companies received a shot in the arm tax-wise;—jointly they now charge depreciation at an annual rate of \$10.65 million—an increase of \$3.5 million/year over that previously provided by Mathieson and \$1.3 million/year above the

WHY MERGE ?

ACQUIRER MAY GET:

Vertical integration—adds facilities for further processing steps
Horizontal integration—expands product lines in related fields
Diversification—strikes out into new fields
Captive markets; position in foreign markets
Tested management; catching up
Upgrading of basic manufactured products
Tax advantages

ACQUIREE MAY GET:

Financial security—capital and raw materials for development
Research facilities—limited in small operation
Market facilities—more outlets, better serviced
Tax considerations—estate problems
Higher salaries, capital gain for executives
Resolution of management dissensions

merger prospects are becoming harder to find.

This month's crop (Mathieson's acquisition of John Powell & Co., Inc., Vick's purchase of Extruded Plastics, Inc.) were moderate-scale operations. But just a few weeks before, merger of Merck and Sharp & Dohme set chemical lines buzzing, became a major business event of the season (CW, March 7).

The Man Behind . . . Merger motives can be widely different, complex. On both sides, there must be gain. Larger companies, however, more and more are systematizing the process; some have even assigned vice-presidents, or whole departments, to the job of rooting out prospective mergees. Which is the important factor in whetting merger depends on which seat you occupy. The acquirer may be casting about for a quick road to expansion "glory"; while the "acquiree" is eager to trade in his name for material gain.

Merck is a basic producer, sells most of its products in bulk to other companies (except cortisone, which is detailed directly to the medical profession). S&D sells directly to retail druggists, buys most of its drug products from others. In foreign markets, Merck relies mainly upon bulk exports, licensing of processes; S&D has a number of foreign subsidiaries.

For 1953, early returns point to improvement in Sharp & Dohme's earnings—possibly up 10-15%. The outlook is more uncertain for Merck "due to unsettled conditions in antibiotics and vitamins, increased competition for the cortisone market." Long-term outlook: good, because of Merck's fundamental research.

- Horizontal integration was provided by Mathieson's entry into the petrochemical field, and more recently (CW, July 19, '52) by its acquisition of Squibb. Mathieson saw in Squibb a chance to strike out in a related industry; Squibb was digging

depreciation provided by Mathieson and Squibb together a year ago.

Stimulated by the venture, Pres. Thomas S. Nichols, reached out again recently to take in John Powell Co., Inc., a manufacturer of insecticides. More properly a vertical integration, the move places Mathieson's basic ingredients in line for end-to-end production.

- Diversification is the motive most often connected with Food Machinery's entry into the chemical field. Says Ernest Hart, executive vice president, chemicals divisions (and former president, Niagara Sprayer & Chemical Co., merged with Food Machinery, 1943), "There is no denying the quick rewards to be realized by successful acquisition . . . the highroad to industrial glory."

Merger with Westvaco, Sept. '48, offered even greener pastures. For Westvaco: ". . . the attraction of a large, well-organized, well-fortified financial organization."

• Sometimes a company is sought for merger merely because it has a tax-loss carry-over. Small companies, especially, can't stand heavy debt—would sooner sell out and take a capital tax gain under the sheltering security of a large corporation. Less often (and usually in the case of family corporations), motive for sale is the inability of owners to pull out liquid assets without heavy tax drain.

• Acquiring newer technology is the result—though seldom the acknowledged purpose—of numerous mergers. Recent example: Diamond Alkali's acquisition of Belle Alkali, availing itself of a process of chlorinating methane.

• Patent position, on the other hand, has triggered few mergers in the chemical industry. More common, less publicized, are the capital gains, higher salaries forthcoming to executives of the acquiree.

Riding Herd: Keeping an eagle eye on the Federal Trade Commission's first attempt to untie a corporate merger under the new Clayton Act authority may give chemical executives a clue as to how rough or easy FTC will be on mergers from here on out.

An appeal from an initial decision of FTC Hearing Examiner, E. F. Haycraft, in the Pillsbury Mills case gives Eisenhower's chairman, E. F. Howrey, a chance to set the tone of Republican antitrust enforcement. The commission can decide whether FTC lawyers have to bring in detailed statistical evidence to prove a merger has reduced competition. To date, the theory, backed by court decision, has held that they have only to show that the merger "would tend substantially" to lessen it.

Haycraft's ruling said FTC attorneys had not backed their case up with enough evidence, had not asked for production, sales figures before and after the merger, as well as figures of competitors. Says he, "A mere showing that a company with 22% of the market buys out a company with 20% of the same market does not automatically mean that the purchasing company controls 42% of the entire market."

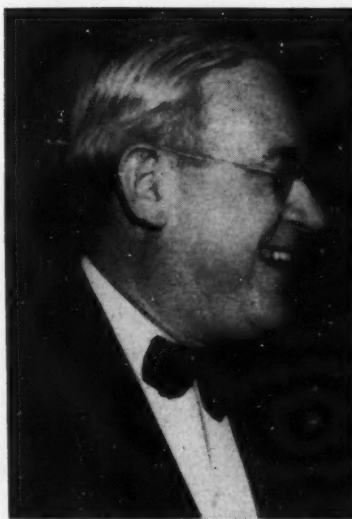
Feeling in Washington predicts a delay of months before the commission decides which view is correct, thinks if Haycraft is finally upheld, the merger law will be tough to enforce. (Years would be required to assemble enough records to make the charge stick.) On the other hand, if FTC lawyers are upheld, merger prosecution will be comparatively simple and fast, will force chemical companies to take added pains in evaluating the advantages of acquisitions.

Out of the Woods?

"Don't sell Britain short" is the admonition of Monsanto's Francis J. Curtis to the U.S. chemical industry.

"Britain has turned the corner on the path to economic recovery . . . chemicals are as usual leading the way." Appearing before the Society of Chemical Industry, Curtis spoke from first-hand knowledge; he had arrived just a day previous from a five-week tour of England. His major observations: that the chemical industry in Great Britain is progressive, is plowing ahead faster than industry in general, is dropping 2½% of sales back into research, has an eye peeled on the future.

Expansion of British industry in



CURTIS: "Britain . . . will do it."

general in 1952 was modest: based on 1948 production figures as 100, the over-all production index stumbled backwards from 117 to 114; but the index of chemical production more than carried its own weight, inched up from 139 to 142.

Other signs of a live and pushing industry were cited by Curtis:

• In 1949, the Assn. of British Chemical Manufacturers set down then-current projects for new capital investment. By July, '52, the total (£200 million) was 41% complete, 34% in progress, 19% postponed, 6% abandoned.

• Productivity teams sent to the U.S. in 1952 demonstrated capacity for self-criticism—one of the prime requisites of a progressive industry. Teams on heavy inorganic and organic chemicals were especially self-critical, pointing out that "the amount of cap-

ital investment per employee in the U.S. is two-three times what it is in Britain—a prime cause of greater American productivity." Another point: in the U.S. we have one technical employee for every six hourly workers; in England, ratio is 1 to 16.

• In terms of development, Imperial Chemical Industries' experiment at Wilton is progressive, Curtis finds. The philosophy behind the scheme holds that instead of operating a series of small plants for many divisions, ICI will weld them together in an "economic setup." The first units (under one administrative force), producing methyl methacrylate and phenol-formaldehyde molding powders, were installed in 1949. In 1951 came formaldehyde, olefins, ethylene oxide, glycol, and lissapol detergent. α-Naphthylamine, polyethylene, and urea-formaldehyde came on in 1952. Phthalic anhydride and Terylene units are now under construction.

All general functions—power, water supply, roads, etc.—are handled by a central administrative force; different divisions operate themselves, are charged a proportionate share of the overhead.

• In the field of sulfur and sulfuric acid, the conversion to pyrites is progressing, though not spectacularly. Shell, at Stanlow, is recovering 12,000 tons/year of sulfur. Esso, at Fawley, is about ready to start operations to recover an equal tonnage; Anglo-Iranian is considering a similar project.

In accordance with plans formulated in 1951 for increased production from anhydrite by the United Sulfuric Acid Corp., two 75,000 tons/year units will be ready by 1955.

• In plastics, Bakelite is constructing a plant at Aycliffe for vinyl chloride monomer from carbide, is also making polyvinyl chloride. The Forth Chemical Co. has started first British production of styrene monomer at Orangemouth. In fibers, ICI is trebling production of nylon polymer; polyethylene fiber is being turned out by Courtaulds for industrial purposes. Rumor has ICI proposing to produce 11 million lbs./year by 1955.

• Lastly, in the field of petrochemicals (where Britain is lagging behind the U.S., but is outstripping Germany), Petrochemicals Ltd., Manchester, produces ethylene glycol, isopropanol, and propylene oxide, although it is not operating at present. But British Petroleum Chemicals Ltd. is turning out ethyl alcohol, isopropanol and acetone.

Conflict on Imports

Boiling on the Congressional stove last week and this: a searing argument over the oil import limitations proposed in the Simpson tariff bill (*CW Newsletter, May 16*). It's significant to the chemical industries because:

- It shows how the big tariff battle is shaping up.

- Any limitation on oil imports could affect petrochemical supplies and prices.

The House Ways & Means Committee is likely to conclude its hearings on this subject this week, then vote to kill the oil import limit clause. Eventually, Congress is expected to extend the Reciprocal Trade Act for another year, add a seventh member to the Tariff Commission, and approve the tariff study commission wanted by Eisenhower.

Those who came around to applaud the Simpson bill's proposed limits on total imports of crude petroleum and products (10% of annual demand) and on residual fuel oil (5% of demand) included the National Coal Assn. and Independent Refiners Assn. of America. The Independent Petroleum Assn. of America supports the limit on total oil imports but doesn't think it's necessary to limit residual fuel oil shipments.

Opposing these limits are Interior Secretary Douglas McKay, large oil companies like Socony-Vacuum and Texaco, the New England Council (manufacturing industries), the National Federation of American Shipping, Michigan Petroleum Assn., Oil Heat Institute of America, Empire State Petroleum Assn., Independent Oil Men's Assn. of New England, and numerous individual companies.

Home Team Lineup

Men who've long shown interest in—and concern about—this nation's domestic supplies of basic resources make up the first set of officers and directors of the recently organized nonprofit investigative corporation, Resources for the Future, Inc.

President will be R. G. Gustavson, now chancellor of the Univ. of Nebraska and formerly liaison executive for the Univ. of Chicago's share of the atomic bomb program during World War II. Horace M. Albright, president of U.S. Potash Co. and founder of Resources for the Future, was elected chairman of the board.

Among board members: William S. Paley, CBS board chairman who headed the President's Materials Policy (Paley) Commission; Leslie A.

Miller, former governor of Wyoming and chairman of the natural resources task force of the Hoover Commission; and Edward J. Condon, Sears, Roebuck vice-president and former president of Friends of the Land.

Resources for the Future will sponsor the Mid-century Conference on Resources, to be held next Dec. 2-4 in Washington.

COMPANIES

Purchases, both finalized and anticipated, were bruited about last week:

- Celanese Corp. of America has purchased Marco Chemicals Inc., Linden, N.J.—among the pioneers in the development of polyester resins. The move marks Celanese's entry into the field of low-pressure thermosetting resins.

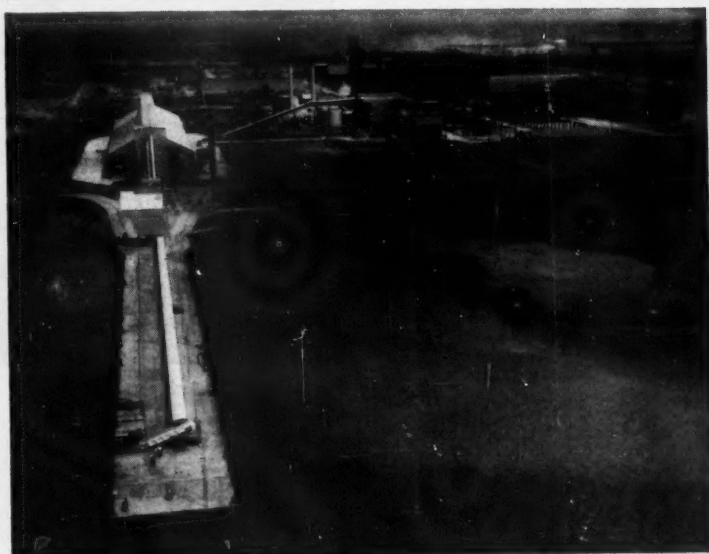
- W. R. Grace & Co. plans to make additional investments in the chemical field, says Peter Grace, Jr., president. The company has no inten-

tion to sell or add to its holdings in Davison Chemical Co., which total 22½% of outstanding common stock and 18.9% of preferred stock.

Jasco, Inc.: Approval has been granted by Attorney General Herbert Brownell, Jr., for the sale of the government's 50% interest in Jasco, Inc. to Standard Oil Development Co. for \$1.2 million (*CW Newsletter, Apr. 11*).

The sale gives Standard Development full ownership of Jasco, Inc., a holding company owning patents in synthetic rubber. Before World War II, ownership was shared with I. G. Farben.

Reconstruction Finance Corp. has gone to bat for Pacific Ball Manufacturing Co., forced by the Calif. State Air Pollution Control Law to install smog control or go out of business. Private money was unavailable, so Pacific Ball got a loan for \$30,000 from the Reconstruction Finance Corporation to complete installation.



Getting in Stride

Past the half-way pole in construction work at its \$42-million La Quinta, Tex., plant, Reynolds Metals Co. hopes to start alumina production next month. Total return on two units, capable of separate operation, will clear 1,000 tons/day of alumina.

Major factors in a speedy start: training of operators (already begun) and an available stockpile of bauxite (now close to 50,000 tons). Five shiploads of ore have been delivered from Jamaica; the first (*CW*,

Apr. 28) was unloaded Mar. 29.

Make-ready operations at a new alumina plant are always prone to be drawn-out and tedious, explains Plant Manager R. S. Sherwin, because of complicated equipment, integration of more than 25 different types of units. No less than 100 pumps are required, the largest having a capacity of 3,000 gal./minute. When the snags are ironed out, operating procedures smoothed, "we start playing for keeps," Sherwin says.

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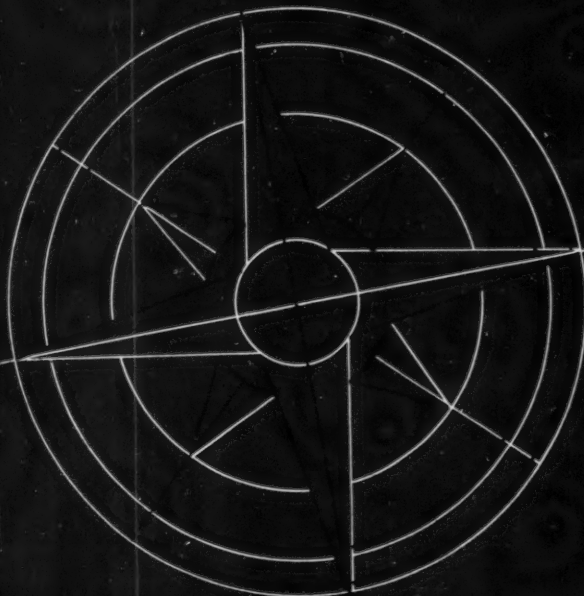
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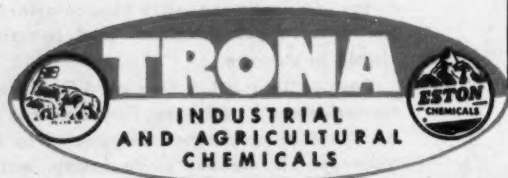
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KREBIOZEN'S PARTISANS: Durovic and Ivy—victims of "plot" or unethical experimenters?



TESTIMONY ON TAPE: Rep. Pollack (left) with Durovic's lawyer.

Million-Dollar Drug Riddle

Out of the millions of people who have now heard about the purported cancer drug "krebiozen,"* many are wondering what it does, a few are curious about what it is, and at least one leading figure in the controversy has expressed doubt that it really exists.

Krebiozen is big news in Illinois these days, with a joint committee of the state legislature holding an investigation in Chicago's city council chambers to find out if the Univ. of Illinois was on solid ground in halting use of its laboratories for krebiozen research.

Among the persons and organizations involved in the dispute so far: American Medical Assn., which has pronounced krebiozen as ineffective; an unidentified "Indianapolis pharmaceutical house," which reportedly offered \$1 million plus royalties for distribution rights; the president and a vice-president of the Univ. of Illinois, who are in violent disagreement on the value of the substance; a former Argentine cabinet member, who has testified about a "plot" against krebiozen; the Cancer Research Committee of the National Research Council, which has turned thumbs down on krebiozen; and a former senator, whose suffering—it's claimed in a letter quoted by a krebiozen supporter—was alleviated by use of krebiozen during the last few weeks before he died of an unannounced illness.

Testimony Without End: The cur-

* Name derived from combination of Greek words meaning "creator of a biological force."

rent investigation, originally planned as a two-day affair, has now been rambling along for a month and a half, will resume next week—possibly in Springfield. State Rep. William E. Pollack, who reluctantly took the job of investigating committee chairman at the request of Gov. William G. Stratton, had hoped that it would suffice to give one session to the pro-krebiozen faction, another to the critics.

Krebiozen is what Stevan Durovic, refugee Yugoslav physician, says he has produced from reticulo-endothelial cells of horses in Argentina. A Canadian physician and a number of individuals have told—not under oath—about various cures supposedly affected by use of krebiozen. The substance was announced to the public Mar. 26, '51, through a press conference arranged by Andrew C. Ivy, Univ. of Illinois vice-president in charge of its Chicago professional schools. Since then, Ivy has been suspended from membership in the Chicago Medical Society, and has been given leave of absence, without pay, from his university post. Ivy charges that these steps were part of a "conspiracy" launched against him because of his support of Durovic.

This is what University President George D. Stoddard told the committee about Durovic and his work: Durovic is "a living question mark. All his work on krebiozen is cloaked in mystery. We know only that it is remote, expensive, and easily drop-

ped." Krebiozen is "a nonexistent white powder."

Formula Unknown: Durovic has refused to tell exactly how he makes krebiozen; and when Ivy showed a 15-mg. pellet of the material to the committee, he explained that this was enough for 1,500 doses but not enough for a full chemical analysis.

At one committee session, an attorney representing the AMA questioned Durovic about the reported million-dollar offer from an "Indianapolis pharmaceutical house." Durovic said he turned that offer down because:

- More experimentation on krebiozen was needed.
- That company wanted to price krebiozen "three to four times" higher than Durovic thought necessary.
- At least one other drug firm wanted to bid on sales rights.

Eli Lilly & Co., the only large pharmaceutical house in Indianapolis, has declined to confirm or deny that it is the company to which Durovic alluded.

What Pollack's committee is trying to unravel is a tangle of scientific and ethical questions—krebiozen's make-up and efficacy; propriety of using a secret, untested drug on humans; announcement of a drug as beneficial in cancer treatment before the drug is tested and approved by the Food & Drug Administration and medical organizations; denial of use of laboratory facilities for research on such a drug.

The committee's actions may set important precedents for development and marketing of pharmaceutical products for many years to come.

MEMO

To Chemists
and
Biochemists

Subject:

INOSITOL

Data

A recent booklet, **ARGO BRAND INOSITOL**, contains the timely and significant story of:

- Inositol and its Chemical Relationships
- Occurrence of Inositol
- Growth Factor for Yeast and other Microorganisms
- Vitamin Activity
- Lipotropic Action
- Inositol, Cholesterol, and Atherosclerosis
- Physiological Effects of Inositol
- Biochemical Analogues of Inositol
- Methods of Determination

Thoroughly documented, this review contains 143 pertinent references. Write for your Free copy today.



"Fine Chemicals from Corn"

Chemical  Division

**CORN PRODUCTS
REFINING COMPANY**

17 BATTERY PLACE • NEW YORK 4, N. Y.

BUSINESS & INDUSTRY

Another Makes Ready

Lone Star Sulphur Corp. officials broke ground last week for a \$600,000 plant to be constructed near Long Point, Tex., located adjacent to an operating sulfur plant reported last year to have produced nearly one-quarter million tons of sulfur. Lone Star officials are counting on early returns from their investment—to the tune of 400 or more tons of free sulfur daily.

Designed by Miles F. Wortham and Associates, Chicago, to furnish a million gallons of hot water a day to the wells, the plant will be situated on a 320-acre tract, will require final testing in the form of firing the boilers and pumping water into the sulfur wells before production starts.

FOREIGN

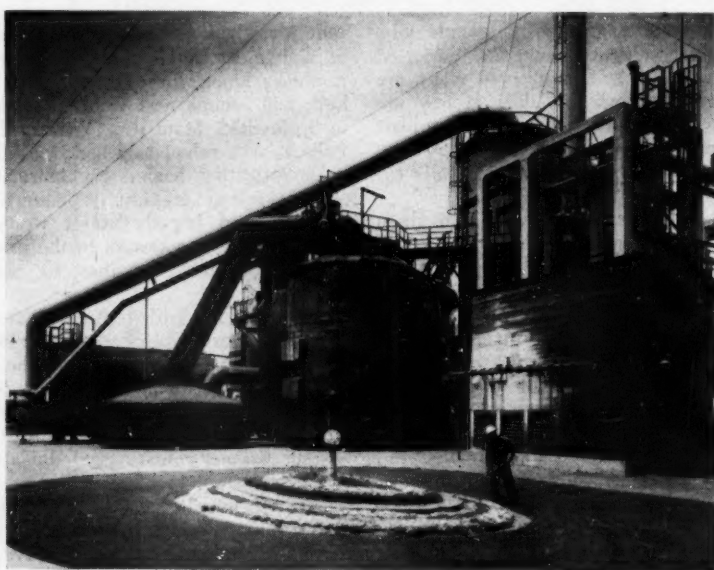
Uranium/India: The Indian government has begun construction of a uranium processing plant on Trombay

Island, which lies between the mainland and Bombay Island. Source of the uranium: Bihar, in North India.

Medicinal Products/Cuba: Parke, Davis & Co. has opened a manufacturing laboratory in Havana, Cuba. Last month, the firm opened manufacturing units in Buenos Aires, Argentina.

Sulfur/Venezuela: Sulfur deposits have reportedly been located at the El Pilar area in the State of Sucre, Eastern Venezuela. The newly formed Venezuelan Sulphur Corp. is planning to spend 17 million bolivares in building a refinery. Annual output: 250,000 tons of refined sulfur.

Formaldehyde/Canada: Bakelite (Canada) Ltd. has begun formaldehyde production at its million-dollar Belleville plant. Annual capacity: some 30 million lbs./year—about the same as current Canadian consumption. The company plans to use about half



A Thing of Beauty . . .

GREEN LAWNS, flowers, and shrubs around Consolidated Chemical Industries' Houston, Tex., plant are showing personnel-public relations profits. Well-manicured prolifically blooming flower beds apparently are balm to employees, encourage good housekeeping within the plant. Most important: healthy foliage is mute assurance to local citizenry that any air pollution occurring from time to time in the Houston area does not emanate

from Consolidated's sulfonic acid units.

E. S. Rothrock, vice-president and general manager of the southern division, found the floriculture so gainful, the idea was extended a few years ago to include some 15 acres of nearby unimproved woodland, owned by the company. There the company did more than plant flowers; a baseball diamond and bleachers were built for the teen-age league.

...Ready to Roll from Coast to Coast



Usage for industrial alcohols has reached an unparalleled level during the past decade . . . creating a demand that Commercial Solvents Corporation, a pioneer in alcohol research and production, has answered by producing more ethyl alcohols and derivatives for the chemical industry.

Over the supply lines of America move the CSC fleet of tank cars and tank trucks, bringing these essential chemicals to industry from its nationwide network of strategically located plants and distribution points...ready to offer you unsurpassed service.

CSC ethyl alcohols are available in all formulas and grades to meet the most exacting requirements of the pharmaceutical and industrial trades.

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Dibutyl Phthalate	Formaldehyde N.F.
Tributyl Phosphate	Pentaerythritol
Methanol	Acetone
Ammonia	Methylamines

INDUSTRIAL CHEMICALS DIVISION

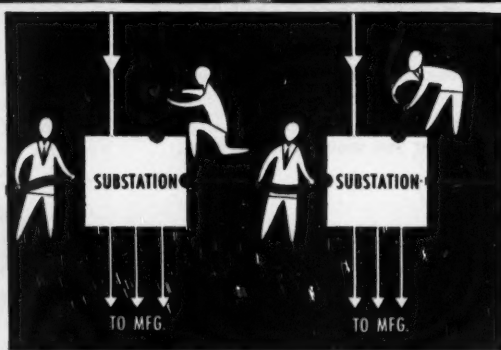
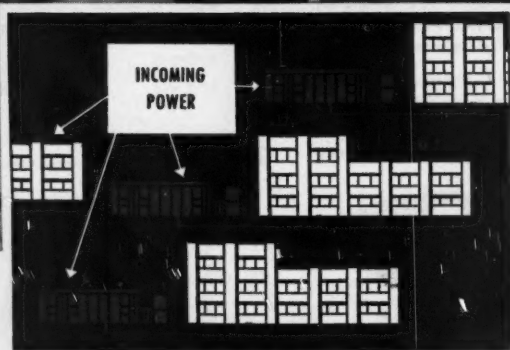
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AMMONIA • NITROPARAFFINS • SOLVENTS • PLASTICIZERS • INTERMEDIATES

May 23, 1953 • Chemical Week

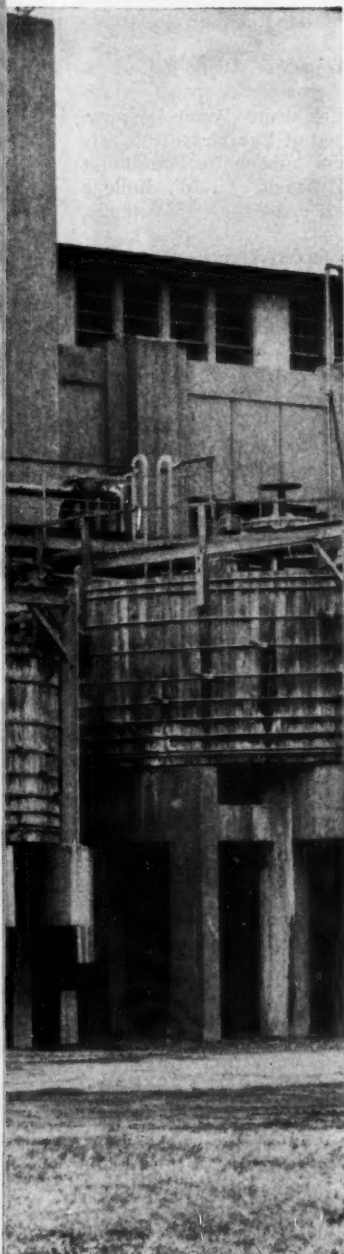
23

**They did what you can do
to produce more**



To handle the big Willow Island plant expansion, American Cyanamid spotted 10 power substations throughout the manufacturing area. When new buildings are added, new substations will be installed without interfering with production in the existing buildings. When the plant is expanded, the new substations will also be connected into the "secondary network". This improves system capacity and reliability because substations share the load. If you want benefits like these, have Westinghouse help plan *your* next power system.

Here's a Power System that provides for wide plant expansion



American Cyanamid's new plant at Willow Island, West Va., has only five manufacturing buildings now, but future plans call for many more. The problem here was planning a power system that would be highly dependable and efficient today . . . and still provide for all this future expansion.

Westinghouse and American Cyanamid engineers worked out a system

The answer was in providing a system of power centers that could be quickly and easily expanded into a "secondary network" power system as the plant grew.

Network system design prevents power outages

This plant can't take chances on a power failure and this network system gives them exceptional reliability. If there's trouble on any feeder, they can switch to another. If any substation should go out, its building is automatically served by the other substations through the cross connections. For more insurance, each substation has twin transformers and if one needs service, the other handles the load.

Call Westinghouse early on your next project

Careful planning can give you advantages like these when you're building, expanding or modernizing your process plant. We would like to help you do this planning. Call in Westinghouse early on your next project. Westinghouse Electric Corp., Box 868, Pittsburgh 30, Pennsylvania.

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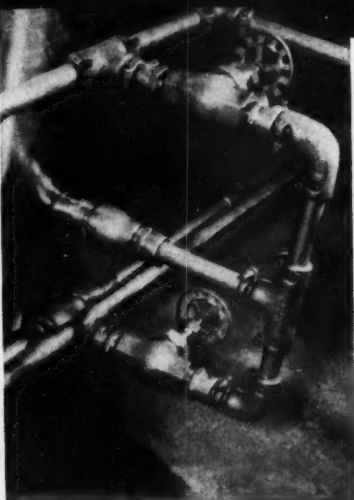
Quikupl

Says **PRECISION FILM LABS**
NEW YORK, N.Y.

"A quick glance at the piping layout in the print told us that we had to install about 1000 feet of stainless piping and more than 700 stainless fittings. Thinking in terms of conventional assembly methods, this meant three months of work before we could start operations."

"Just about this time, Quikupl became available. In addition to putting us in business eight weeks ahead of schedule, it sliced 40-50% off our estimated installation costs. And what's more, we now have a stainless processing line that we can tear down in a jiffy for clean-out or rearrangement."

"Cost conscious plant men will find Quikupl worth investigating."



BULLETIN Q100



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B & I

the output for phenol-formaldehyde and urea-formaldehyde products.

Nylon, Polyethylene/Canada: Canadian Industries Ltd.'s \$20-million plant will start producing nylon intermediates at Maitland, Ont., in the third quarter of this year. CIL's \$13-million polyethylene plant at Edmonton will also come in late this year.

Refinery/Argentina: Work has reached the 75%-completion point on Argentina's Presidente Peron Refinery, being erected at Eva Peron (formerly La Plata) for Yacimientos Petroliferos Fiscales. Designer: M. W. Kellogg Company, a subsidiary of Pullman, Inc.

When completed, the refinery will include a fluid catalytic cracking unit, alkalation, and one of the world's largest delayed-coking units.

Alcohol/Thailand: The Thailand Ministry of Industry is building a continuous alcohol distillation plant at Ayuthia. It employs the Guillaume process, has a daily capacity of 30,000 liters. Another government-sponsored project: establishment of a vegetable oil extraction plant at Chiangmai to process local oil seeds including peanuts and soybeans. Capacity: 80 tons of oil a day.

Latex/Columbia: Establishment of Placco de Columbia, Ltda., has been revealed by the Pioneer Latex & Chemical Co., Middlesex, N.J. The South American affiliate will head-quarter near Cali, will manufacture latex compounds, industrial asphalt emulsions.

Petroleum Additives/Canada: Monsanto Canada Ltd. has broken ground for a \$400,000 petroleum additive plant at Ville LaSalle. Scheduled for production before year's end are several types of detergent and inhibitor additives; special compounds for gear lubricants will follow soon.

LEGAL

More Evidence Wanted: When Stanley N. Barnes left the California Superior Court last month to become head-man in the Antitrust Division of the U.S. Dept. of Justice, he said his watchword would be "prosecution, but not persecution." That he meant what he said about "persecution" was seen when the government dropped its criminal action against the big oil companies and instituted a civil action instead (CW Newsletter, Apr. 18).

Last week in Chicago, where the government's antitrust suit against

• Davison Bulletin •

CONFIDENTIAL CONFIDE

Confidential handling of catalyst problems is one of the reasons why Davison is the major catalyst producer in the country. Intricate coding plus restricted internal distribution keeps your catalyst secrets safe in Davison hands.

Davison recognizes that catalysts are the heart of chemical reactions, therefore, they are a most carefully guarded secret. And Davison is equipped to meet the requirements of almost any given catalyst problem.

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HYDROGEL to induce microporosity

Manufacturers are using economic hydrogel to induce microporosity in rubber, resins and plastics. Material is a highly hydrated amorphous silica. The hydrogel, which is incorporated in rubber products, shrinks during drying operations thereby inducing porosity.

Davison hydrogel (SiO_2) \times H_2O is colorless, translucent and available in semi-solid lumps or finely divided. The range of pH is 5.7 - 6.8.

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$\text{SiO}_2 \cdot \text{Al}_2\text{O}_3$ Combination

Pt \cdot SiO_2 Combination

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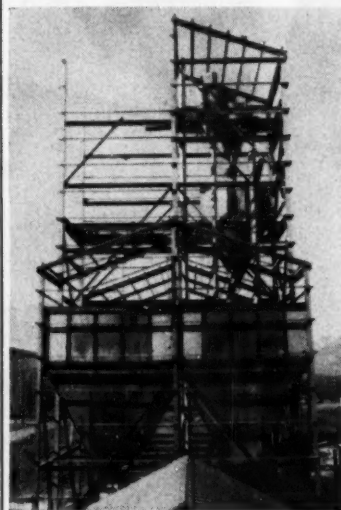
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Complete technical data, prices and samples available on request

B & I

Du Pont, General Motors and U.S. Rubber has been droning along in low gear, antitrust lawyers showed what Barnes meant by "prosecution." The government attorneys suddenly put new life into that case by asking Judge LaBuy to order Du Pont and two dozen other companies to bring into court all their records on sale of paints, fabrics and other products to GM for various periods extending as far back as 1915.

Defense lawyers immediately denounced the government's request as a "dragnet" that would prolong the case "indefinitely," just when it began to appear that the case could be finished next fall. Judge LaBuy criticized the scope of the Justice Dept.'s motion, but upheld the government's right to obtain more material for its rebuttal. He told lawyers for both sides to try to agree on the material



Venture in Nevada

SHAKEDOWN TESTS are being run at the Aquafil Co.'s push-button diatomaceous earth plant, Fernley, Nev., located adjacent to one of the largest level deposits of diatomaceous earth on the North American continent. It has been built in two independent sections; total capacity, 200 carloads/month.

Long-time producer of fuller's earth for the poultry industry and filtering purposes, Aquafil claims ever-widening markets. Uses: covering agent for ammonium nitrate; diluent in insecticides; inert filler in the insulation field.

U.S.I. CHEMICAL NEWS

May 23

★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries

★ 1953

To Use Sodium Reduction in First Fatty Alcohol Plant

Metallic sodium will soon be instrumental in making an important new series of products available to the detergent field, according to a recent announcement. The products are long-chain fatty alcohols, which are obtained from tallow through a reduction reaction with sodium. Production of these materials, the first in this country, is scheduled to begin shortly in a new plant with a capacity of 1.5 million pounds per year.

The present process is scaled to batches requiring one drum of sodium at a time. The sodium is melted, dispersed in toluene, and added to a mixture of tallow, methyl isobutylcarbinol, and toluene in a reactor. Reduction is carried out at 110-115° C. under a blanket of nitrogen. The reaction splits the tallow glycerides, yielding a mixture of caustic, glycerine, fatty alcohols, and solvent. Components of the mixture are separated in a settling tank, after which the fatty alcohols are purified by vacuum distillation.

Detergents, including new bar detergents, are expected to be the chief outlets for the alcohols. Other markets are seen in water repellents, plastics, oil additives, and cosmetics.

Find Rare Earth Metals Make Good Paint Driers

The rare earth metals have entered the paint drier field with good results, it was revealed at a recent technical meeting. According to the report, investigators obtained what was termed startling results in white refrigerator enamel with a solution of rare earth naphthenate consisting of 50 per cent cerium and 50 per cent lanthanum. Field tests on epon resins, styrenated alkyds, silicones, and oleoresinous baking alkyds are said to have confirmed laboratory results of cleaner, tougher, better adhering films. Improved soap and water resistance is also claimed.

U.S.I.'s Newest Chemical To Save Scarce Hand Labor In Nation's Cotton Fields

CIPC Now Available to Herbicide Formulators; Applied to Soil During Planting, Chemical Controls Crab Grass, Other Weeds, in Cotton

U.S.I.'s most recent addition to its chemical line, CIPC, is expected to play an increasingly important part in reducing the cost of controlling weeds in the



Left: Weed control results after application of CIPC at the rate of two pounds per acre. No manual weeding has been required. Right: Untreated check plot in the same field. Plants in both pictures are, bottom to top, green beans, corn, peanuts, soybeans, and cotton.

Return of Wastes to Soil Termed Essential

Inorganics, Conditioners Not Complete Replacements for Soil Losses; Relationship Seen Between Organics and Antibiotic Formation in Soil

In a recent paper on the general subject of returning wastes to the soil, it was pointed out that there are indications of a direct relationship between the return of organic matter to the soil and the formation of antibiotics in the ground. This was declared to be an entirely new concept in the control of plant diseases. One example cited was recent work which showed soil-borne parasites to have been suppressed by heavy manuring of infected soils with organic matter.

Farm Wastes A Rich Source of Organics

With continued vigorous cultivation of the land, organic matter has been vanishing from our soils in spite of great mechanical and

technological achievements in agriculture. Half the tonnage of our food production above the ground is inedible to man and is usually wasted, it was said. It has been estimated that several hundred million tons of crop residues and agricultural wastes, which are not used for chemurgic or feeding purposes, remain on farms each year.

Listeners were reminded that organic matter exerts beneficial effects on the physical, chemical, and biological properties of soil, and that inorganics alone are not enough to keep the soil at peak productivity. It was recommended that under practical conditions

MORE

nation's future cotton crops. According to the National Cotton Council, a substantial part of the cost of producing cotton is made up of expenditures for weed control—which must be done largely by hand hoeing operations. Increased labor requirements as well as growing shortages of labor have sharply increased these costs in recent years. Competition for the steadily decreasing labor force in the South is expected to drive them still higher in the future. CIPC is seen by many as a solution to the problem.

CIPC "Weeds As You Seed"

CIPC, designated chemically as isopropyl N-(3-chlorophenyl) carbamate, is a close relative of IPC, another useful herbicide which U.S.I. began producing commercially last year. Like IPC, it is primarily a pre-emergence herbicide, i.e., it works best when applied to the soil before the weed seeds germinate, or shortly thereafter. In certain

MORE

May 23

★

U.S.I. CHEMICAL NEWS

★

1953

CONTINUED Weed Control

cases, however, CIPC can also be used to advantage in post-emergent applications. Once in the soil, CIPC appears to disrupt cell division within susceptible plants, after which the plant stops growing and dies. CIPC is most effective when it is applied at the same time the seed is sown.

CIPC, like IPC, is manufactured by U.S.I. for use by herbicide formulators. The company does not supply finished farm herbicides. **Provides Effective Control of Crab Grass**

Tests by the U.S. Department of Agriculture and others have shown CIPC to be an effective herbicide against many annual weedy grasses and broad-leaved plants, and at the same time to have little or no effect on certain valuable plants. For example, it is particularly effective against the weed enemies of cotton, including crab grass, which is perhaps the worst and most difficult to kill, but it does not harm the cotton itself. In some cases, one application of CIPC makes further weed eradication unnecessary.

If applied to the soil when the cotton is sown, CIPC provides efficient, dependable control of weeds and reduces or entirely eliminates hoeing operations. Thus, it is expected to greatly reduce hand labor requirements and to cut weed control costs for the cotton planter.

Curtails Dangers of Over-Cultivation

Another advantage seen for the new "weed as you seed" herbicides, such as IPC and CIPC, is that they reduce the danger of adversely affecting crop yields through over-cultivation. For example, too deep and too frequent cultivations of cotton have definitely been shown to reduce cotton yields. Chemical weed control eliminates this possibility as well as the mechanical injuries which often accompany the most careful cultivations.

CIPC Effective for Other Crops

In addition to cotton, tests have shown soybeans, peanuts, lima beans and snap beans to have considerable tolerance to pre-emergence applications of CIPC. Post-emergence applications have given good results in the control of chickweed and annual weedy grasses in stands of pure alfalfa.

CONTINUED Organic Wastes

there should be a regular cycle whereby some of the nutrient taken from the soil by plants is later reverted to the soil.

Role of Composts Emphasized

Composting was emphasized as an age-old but still highly effective method for treating wastes before returning them to the soil. Composting, it was stated, results in biological stabilization of organic matter so that it has greater utility in improving the physical nature of soil particles. It has been found that preliminary decomposition of organic matter can be hastened in the composting process by addition of distillery molasses residues or fertilizers. Finished composts are applied at the rate of three to four tons of dry matter per acre and can be used in farm practice as a substitute for manures.

A need was expressed for much more basic knowledge concerning microbially derived fractions of soil organic matter before various theories can be clarified. The author predicted, however, that additional research will show that the return of organic matter to the soil is economically sound as well as most necessary for conservation and maintenance of soil fertility.

Fungus-Proof Paints, Tests Covered in New Bulletins

Fungus-proof paints, and chemicals for achieving them, are subjects of two recent bulletins. The first, a Government publication, is an outgrowth of an Army project to develop a mold-resistant paint for use in tropical climates. Investigators developed a new laboratory test which they say is rapid and which gives results that can be duplicated. The test is described in the report, along with results of tests of some 80 fungicidal chemicals.

The second bulletin reviews several chemicals which protect paints and painted surfaces against mildew and mold. Methods are suggested for utilizing them to preserve water base paints, latex and other emulsion paints, and both natural and synthetic oil paints.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U. S. I.

A new sealing compound for boats, windows, concrete cracks, etc., contains no asphalt or tars, is claimed to be a permanently pliable product which "sticks to anything" without cracking, chipping, or drying out. (No. 920)

Can you use colloidal sodium in your chemical processes? New techniques make the metal available in layers 1 to 5 atoms thick on free-flowing inert carriers. Advantages include faster, safer, more easily controlled reactions. (No. 921)

One quart of a new sludge solvent per 1000 gallons of fuel oil is claimed to keep sludge dissolved in the oil, thereby keeping burner tips and screens cleaner and improving combustion. (No. 922)

To bleach the natural color from all types of wood, a new compound is available which is quick acting, requires no neutralization, leaves no deposit, and does not raise the grain or warp. The manufacturer states. (No. 923)

Kits containing interlocking plastic bricks and model accessories have been introduced for hobbyists, potential home-builders, and architects interested in scale models of houses. (No. 924)

Increased resistance to chemicals at elevated temperatures is claimed for a new synthetic hard rubber compound, available as pipe, fittings, sheets, rods, tubes, and molded parts. (No. 925)

A heavy bodied emulsion-type adhesive has been developed for adhering transparent rubber hydrochloride films to porous surfaces such as Kraft, glassine and other papers and boards, according to the manufacturer. (No. 926)

As a complete or partial substitute for Carnauba wax, a new synthetic is said to compare favorably in gel formation and film hardness, and to have added advantages of uniformity, toughness, flexibility, and lower cost. (No. 927)

A new glass fabric which stretches while the yarns remain stable has been developed for use as a base for reinforced, low-pressure molded plastic products having compound curves. (No. 928)

A surfacing material for interiors of chemical, metal, and food plants, when troweled on concrete, is said to cure to a hard, dense, stone-like, corrosion-proof surface, resistant to solvents, acids, and alkalis. (No. 929)

PRODUCTS OF U. S. I.

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ACETONE—A.C.S.

ANOLS

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Butyl Acetate
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OXALIC ESTERS

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OTHER ESTERS

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Arodure®—urea-formaldehyde resins
Arorene®—pure phenolics
Aroflat®—for special flat finishes
Aroflint®—room temperature curing phenolic
Aroplax®—alkyls and allied materials
Aroplax®—copolymer modified alkyls
Ester Gums—all types
Natural Resins—all standard grades

INSECTICIDE MATERIALS

Allethrin
CPR Concentrates: Liquid & Dust
Piperonyl Butoxide
Piperonyl Cyclonene
Pyrethron® Concentrates: Liquid & Dust
Pyrethrum Products: Liquid and Dust
Rotenone Products: Liquid and Dust

INSECTIFUGE MATERIALS

Indalone®
Triple-Mix Repellents

INTERMEDIATES

Acetoacetanilide
Acetoacet-ortho-chloroanilide
Acetoacet-ortho-toluidide
Acetoacet-para-chloroanilide
Ethyl Acetoacetate
Ethyl Benzoylacetate
Ethyl Sodium Oxalacetate

FEED PRODUCTS

Calcium Pantothenate (Feed Grade)
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Curboy B-G®
DL-Methionine (Feed Grade)
Niacin, U.S.P.
Riboflavin Concentrates
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U.S.I. Vitamin B₁₂ and Antibiotic Feed Supplements
Vacatone® 40

OTHER PRODUCTS

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Ethylene
IPC (Isopropyl-N-Phenyl Carbamate)
CIPC
Liquid Chlorine
Metallic Sodium
Methionine (Pharm.)
Nitrocellulose Salts.
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to be subpoenaed before he makes a ruling.

Outstretched Palm: Alleging that he didn't receive his "cut," Uncle Sam has brought suit in U.S. District Court, Richmond, Va., against Virginia-Carolina Chemical Corp. for \$3,300. The Internal Revenue Bureau says that amount should have been paid for a federal documentary stamp on a \$3-million transaction between V-C and Metropolitan Life Insurance Co., New York.

Insurer Seeks Refuge: Also in court on account of an insurance company tangle is Hercules Powder at Wilmington, Del. Liberty Mutual Insurance Co. contends that an accident policy it issued to Hercules did not cover an accident late last year in which one man was killed and another injured in an explosion at the Electro-Chemical Engineering & Mfg. plant in Emmaus, Pa. The men had been working on material shipped to Emmaus by Hercules under a U.S. Navy contract. Two suits are pending on this case, at Philadelphia and at Wilmington.

Still In Doubt: Texas' State Supreme Court has upheld the state's natural gas gathering tax that has boosted gas bills for chemical plants and other consumers, but the issue still is unresolved, as various gas pipeline companies are likely to appeal to the U.S. Supreme Court. The companies argue that this tax violates the U.S. Constitution's stipulation that "No tax or duty shall be laid on articles exported from any state."

Merger to Proceed: It appeared this week that St. Helens Pulp & Paper Co. will go ahead on its proposed merger into Crown Zellerbach Corp., despite the opposition of a stockholder, George H. Buckler, who, last month, got the Circuit Court in Portland, Ore., to issue a temporary injunction forbidding St. Helens directors to recommend the exchange of stock. After nearly a week of trial and argument, the court decided that the temporary restraining order should be ended, leaving the St. Helens directors free to push the merger.

Tubeless Tire Dispute: Two of the nation's "Big Four" rubber companies are feuding in court over patents on tubeless tires for autos and airplanes. Goodrich brought suit against Firestone in U.S. District Court, Cleveland, asking for damages and an injunction against "further infringe-

ments." Firestone denies any infringement of Goodrich patents, and declares it will "demonstrate that fact to the complete satisfaction of the courts." Goodrich says it has sold more than two million tubeless tires since putting them on the market in 1947.

LABOR

Consolidation Talk: With more AFL-CIO unity negotiations scheduled for June 2, unions in the chemical and allied industries are beginning to think how they might fit together if the big merger should ever go through.

O. A. (Jack) Knight, president of the CIO Oil Workers and leader of the coalition of unions that staged last spring's nation-wide refinery strike, touched on this theme in a recent address:

"The oil workers, utility workers and chemical workers are going to have difficulties in the event of CIO-AFL merger. We had better think how we are going to better our services to our members. I believe it is possible to have unity without sacrificing CIO principles."

Meanwhile, the chemical unions are pushing organizational work for all they're worth. The AFL Chemical Workers have won bargaining elections and established locals at these plants recently:

- Air Reduction Sales Co., Huntington, W. Va., and Warren, O.
- Thomas Edison, Co., Stuyvesant Falls, N. Y.
- U. S. Vitamin Co., Yonkers, N. Y.
- Rocky Flats atomic energy plant (operated by Dow Chemical), Denver, Colo.
- Allied Chemical & Dye, General Chemical Division, Front Royal, Va.
- Ciba Products, Pemberton, Pa.
- Reynolds Plastics, Detroit.
- S. Buchsbaum Co., Fredericktown, O.
- Longhorn Ordnance Plant (operated by Universal Match Corp.), Marshall, Tex.
- Louisiana Ordnance Plant, Minden, La.

Atomic Whirlpool: Labor unions at atomic energy plants have been in a maelstrom of activity lately. Plant-by-plant rundown.

• At the Savannah River Project near Aiken, S.C., where Du Pont will produce H-bombs, the NLRB set May 14-15 as dates for a bargaining election. An advance claim of victory comes from the AFL Atomic Trades

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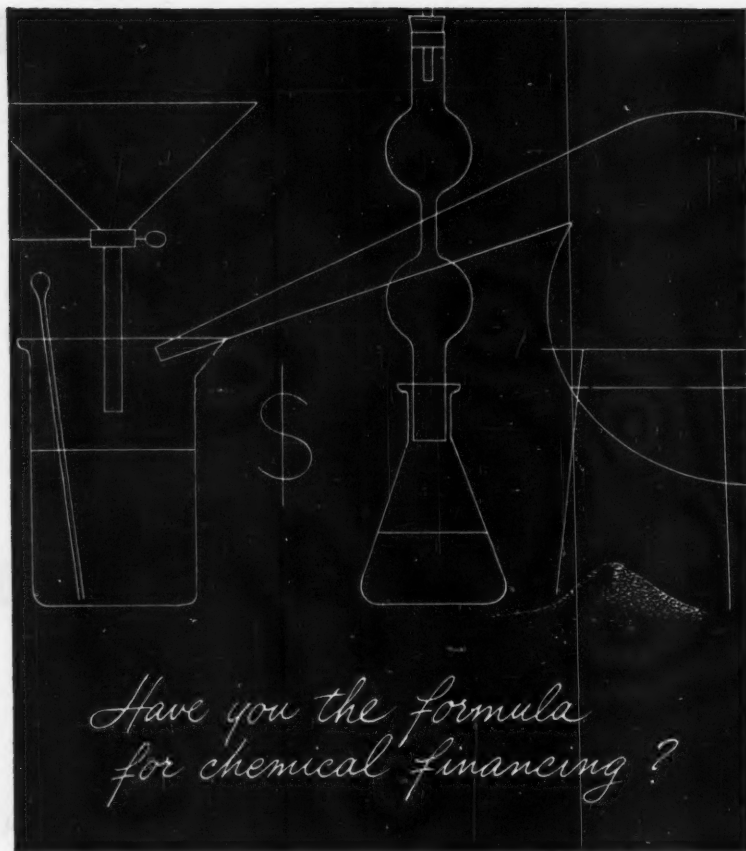


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B & I

Council, which says it has received authorization cards from more than 1,200 operations employees. The day after NLRB announced the election dates, some 775 AFL painters ended their one-week walkout and returned to work, as directed by a telegram from their union's headquarters.

- At Oak Ridge, Tenn., all construction work on the new \$464-million gaseous diffusion plant stopped as AFL craftsmen struck in a dispute over wages. Mediation talks resume May 18.

- At Paducah, Ky., Carbide and Carbon Chemicals and the United Gas, Coke & Chemical Workers (CIO) have signed their first contract after months of negotiations. Principal features: 5¢ wage increase, dues check-off and modified union shop, pension plan, layoff allowances, and hospital and insurance benefits. At the same time, a new wage scale has been adopted by the construction contractor for AFL laborers; rates will be \$1.90/hour for unskilled and \$2.05 for semi-skilled workers. The Atomic Energy Commission has turned down the AFL Carpenters' bid for \$2 daily travel pay and differentials of 40¢ and 80¢/hour for foremen and general foremen.

Comings & Goings: There was a sharp upswing in labor turnover in the chemical industries in March. Latest figures from the Bureau of Labor Statistics, listing turnover in terms of average number of persons joining and leaving the companies per 100 employees, shows that chemical hiring jumped 30%—from 1.9 in February to 2.5 in March. Separations rose nearly 69%—from 1.6 in February to 2.7 in March. Among causes for separations, biggest increase was in layoffs, which averaged 0.2 per 100 workers in February and 0.8 in March.

EXPANSION

Goodyear Tire and Rubber Co. will spend \$5.5 million in its chemical division this year to expand production in Akron and Niagara Falls. Plans call for a \$1.5 million addition in Akron to enlarge the Chemigum plant; a major unit at Niagara Falls to cost \$4 million, to produce vinyl plastic resins, antioxidants, accelerators.

- **Cosmetics, Drugs:** The Mennen Co., Newark, N.J., has opened a plant near Morristown, N.J., said to cost \$4.5 million. Dedication fanfare included a series of open-house tours last week, plugged the plant as making use of "the latest techniques in pro-

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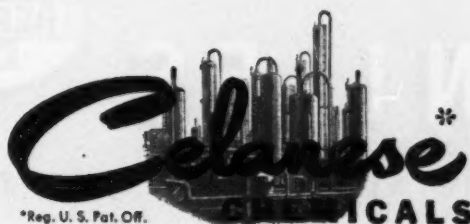
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Patented Ringlox removable head drum shown here and solid or tight head drum are but two of many styles available in the complete Niles line.

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industry produces sturdy, leak-proof barrels and drums that are actually more economical to use because they last longer and require practically no maintenance.

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NILES

METAL BARRELS AND DRUMS



B & I

duction, materials handling and controls."

Phenolic Resins: Expansion of phenolic resin production at the Port Plastics (Addyston) operation of Monsanto Chemical Co. will raise output about 30%, will be started immediately.

Refractory Specialties: Plans have been laid for construction of a refractory specialties plant at Janesville, Wis., by the International Minerals and Chemical Co., Chicago, Ill. The plant will boast a yearly capacity of 75,000 tons; chief product will be a granular refractory for air application in the patching of metal furnaces. Construction will begin immediately.

Polyvinyl Chloride: Contracts have been awarded for construction of a chemical plant near Ashtabula, O., for the Chemical Div., General Tire and Rubber Co. Estimated cost: \$6 million—to include a polyvinyl plant and pilot plant.

General Tire's future expansion moves will broaden its foam-rubber operations, now at Logansport, Ind., will open a rigid plastics division at Marion, Ind.

KEY CHANGES . . .

Ralph K. Gottshall: To president, Atlas Powder Co., Wilmington, Del.

Willard P. Smith: To vice-president, Godfrey L. Cabot, Inc., Boston, Mass.

Thomas H. Rider: To president, Winthrop-Stearns of Canada, Ltd., Windsor, Ont.

Arthur R. Broadman: To vice-president, Heyden Chemical Corp., New York, N.Y.

Robert L. Reeves: To vice-president, J. B. Ford Div., Wyandotte Chemicals Corp., Wyandotte, Mich.

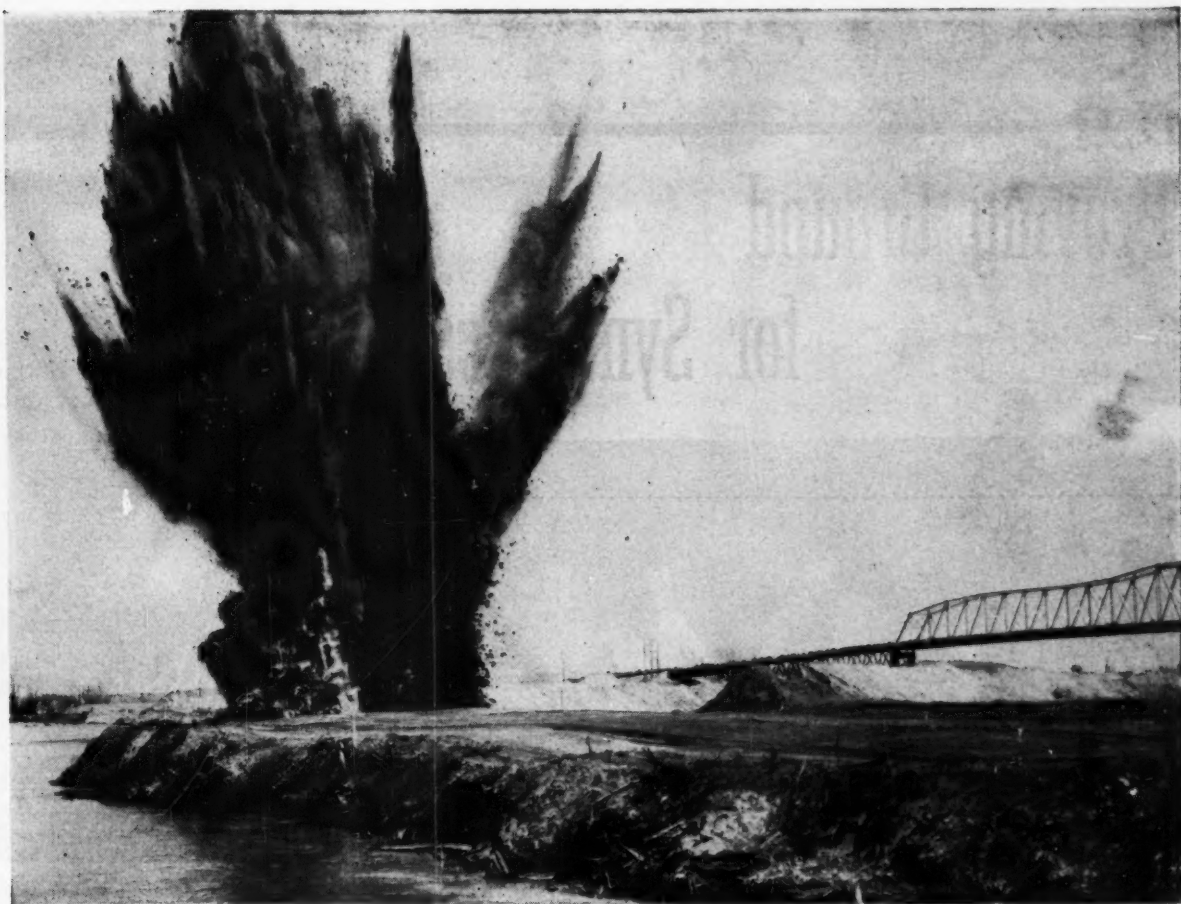
S. S. Johnson: To vice-president, Commercial Development Div., Mathieson Chemical Corp., Baltimore, Md.

Arthur L. Boschen, H. Smith Richardson: To vice-presidents, Vick Chemical Co., New York, N.Y.

C. A. Stiegman, M. L. Parker, Harold L. Townsend, N. Harold Fyffe: To vice-presidents, Oldbury Electro-Chemical Co., Niagara Falls, N.Y.

KUDOS

Howard L. Bender: Assistant director, Research and Development Dept., Bakelite Co., 12th annual John Wesley Hyatt Award for achievement in the plastics industry.



They're Moving The Mighty Mo — With Chemicals

They call her Mighty Mo . . . a restless, headstrong kind of river that has her beginning somewhere in the Rockies above Montana . . . a relentless kind of river that boils and bolts, and finally dumps her cargo of mud and muck into the Mississippi above St. Louis.

They call her Mighty Mo . . . a strong-willed kind of river that, likely as not, will decide to change her channel tomorrow morning; *has*, in fact, on many occasions. But Mighty Mo got a surprise recently when a group of engineers decided to change her channel *for* her — with explosives. You see the result here in this dramatic photograph of the Liberty Bend opening near Liberty, Missouri. More than

2,500 pounds of explosives were used in this blast.

Time after time all of us have watched mighty forces of nature put into harness through the skill of engineers working with explosives — explosives made from chemicals. Spencer Chemical Company plays a part in such operations because Spencer produces vast quantities of commercial grade anhydrous ammonia—ammonia frequently used to manufacture nitric acid for the explosives industry.

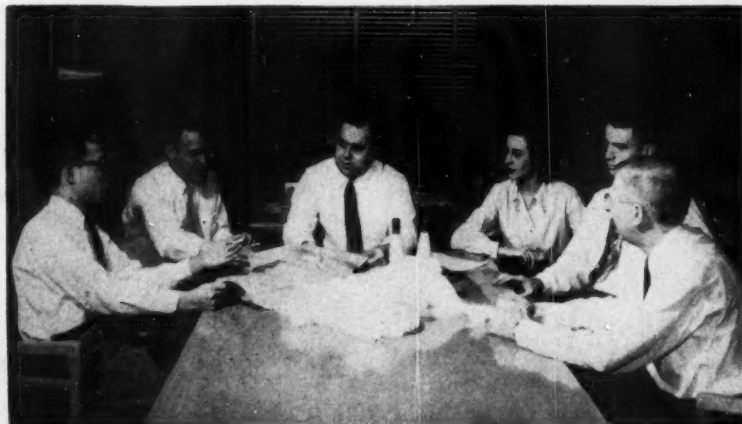
With the completion in late '53 of a new \$16,000,000 plant at Vicksburg, Mississippi, Spencer may be in a position to add some additional ammonia customers. Why not talk over your needs with us?



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Proving Ground for Synthetics



CONFERENCE sets up N.C. State process evaluation study. Processing research dept. head Bogdan (second from left) charts course for Dow fiber with staff leaders.

You don't have to tell synthetic fiber producers that a chemical fiber isn't necessarily a textile fiber. They've learned that fundamental lesson the hard way—with a raft of aborted experimental synthetics as object lessons. The final test of a new synthetic fiber, of course, comes in the open market, where it must compete against natural fibers, related and unrelated synthetics. But before it ever reaches market, it must safely clear a formidable row of hurdles that mark the course of fiber evaluation.

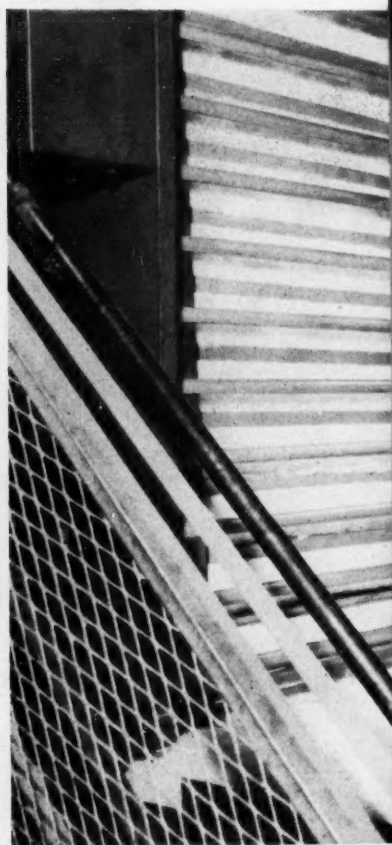
Many chemical fiber hopefuls are eliminated at the test-tube stage on the basis of their physical and chemical properties. Survivors of the laboratory ordeal still have a long way to go. Textile fiber evaluation is an involved, lengthy business; but it's worth it.

Take the acrylics, for example. Upwards of seven are known to be in development, and at least that many more may be in the works. Building a plant means an investment of \$50 million, or more. In the light of this outlay, an expenditure of \$1 million or \$2 million for development and evaluation makes sense.

And that's precisely the logic behind the many thoroughgoing synthetic fiber evaluation programs now under way in industrial mills and laboratories, and at independent institutions like Lowell Textile Institute (Lowell, Mass.) and North Carolina State College School of Textiles (Raleigh, N.C.). Before a prospective fiber manufacturer breaks ground for a plant, he must be mighty sure of the answers to many questions: How does cost of the fiber shape up? Which fabric markets can the fiber best serve? Which should it aim to serve first? How does the fiber behave on existing textile machinery? How many other fibers blend with the new fiber? Which blend best? In what proportions should the new fiber be blended for different applications?

There's a host of additional posers, as well. But the sum total is simply this: Will the fiber sell, and keep selling? And for acrylic men, the brow-wrinkling corollary is: With three acrylics—Acrilan, Dynel, Orlon—already on the market, is there room for more?

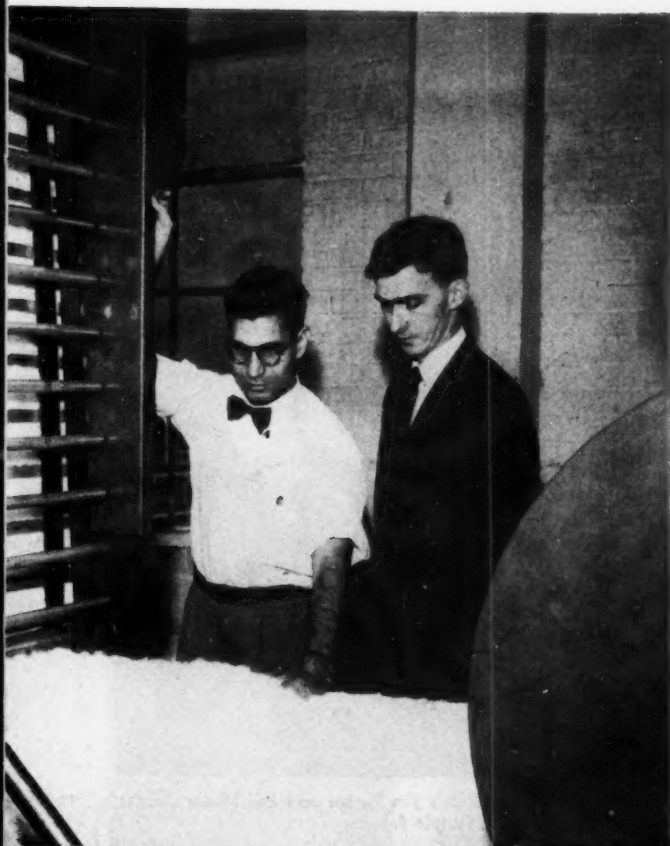
For a close-up look at how textile researchers get the answers, the CW



PICKING, or opening up, operation on P. Kochhar and Dow's Charles Faircloth.



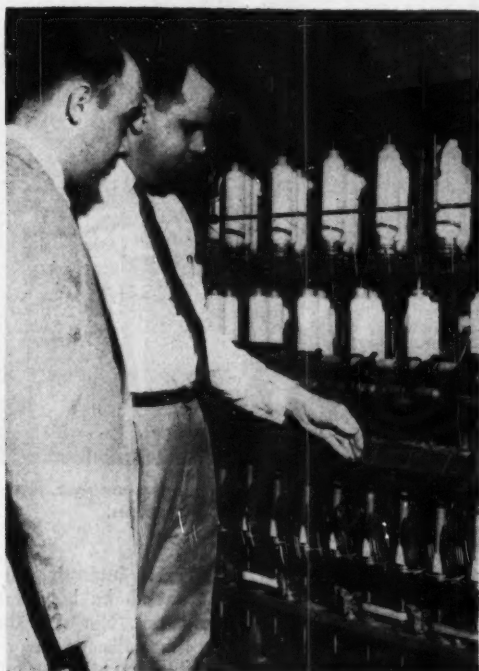
HOW—FIBER runs through yarn-making frame is a key test. Mills won't baby a fiber.



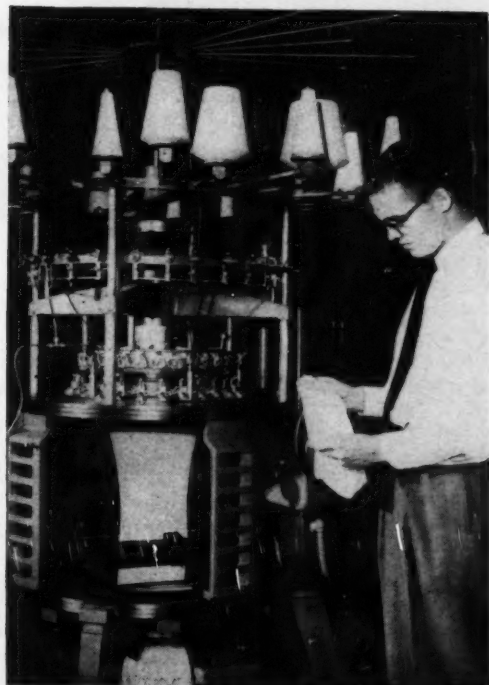
experimental synthetic gets critical look from processing lab supervisor
Cohesion is vital here, but fibers mustn't stick to rolls, bond together.



COHESION also counts in carding. Boyd Carr of Dow
is shown good results by State's Ivan Feng.



AT SPINNING FRAME, Bill Newell cites mills' need
for spinning limits to Dow's Lamar Cloninger.



KNITTING is quick way to make fabric. Expert Gene
Harrell examines sample for dyeability, elasticity tests.

Proving Ground for Synthetics



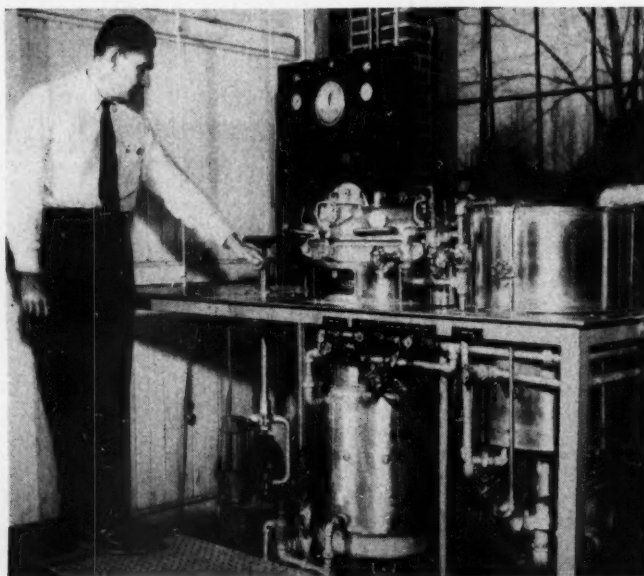
SPECIAL TEST of inter-fiber cohesion enlists electronic tensile tester.



YARN from Dow fiber is also woven. State's Jim Parker and Bill Moser discuss fine points of loom that makes narrow sample fabrics.



STRENGTH, evenness of yarn reflect fiber quality. This apparatus checks evenness.



DYEABILITY probe, a final step, starts in this pressure dyer. Hydrophobic fibers often require high temperatures and pressures.

CAMERA looks this week at North Carolina State College School of Textiles at Raleigh. There, evaluation work by the school's textile research department is now in full swing for seven chemical fiber producers or potential producers. The roster: American Cy-

animid; American Enka; Carbide and Carbon; Dow Chemical; B. F. Goodrich Chemical; Industrial Rayon; and Saran Yarns.

Process evaluation is N.C. State's specialty, and for sound reasons. As one N.C. State textile researcher puts

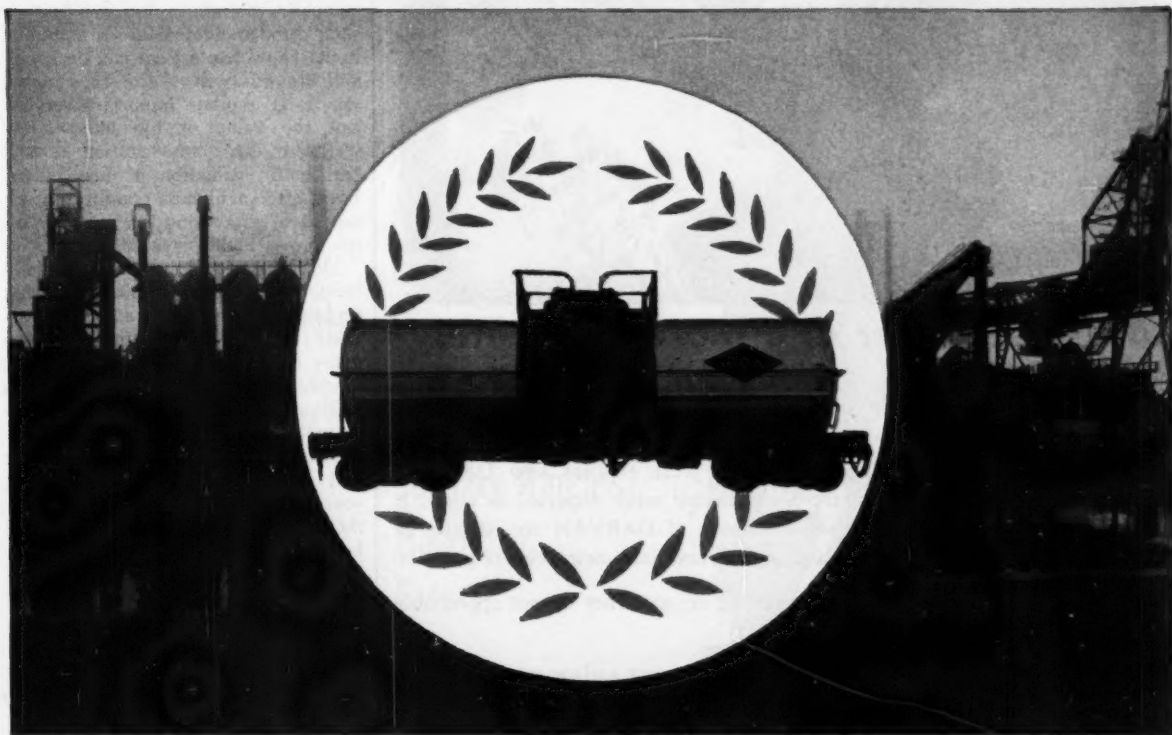
it: "Mills aren't interested in a new fiber that has to be babied through their equipment. Nor will they look at a fiber that calls for major modifications of conventional mill machinery."

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RESEARCH

many factors: physical and chemical properties, crimp, fiber finish, to mention a few. The true test is to run the fiber through conventional machines under conventional mill conditions. A poor showing on one or more counts is not necessarily fatal. Armed with the test results, the producer often is able to satisfactorily up-grade the deficient properties.

How an embryonic commercial fiber stacks up against its potential competitors is an understandably frequent concern of interested mills as well as of the basic producer. Consequently, a good part of N.C. State's work is comparative testing. And determining such fundamental data as spinning limits (how fine a yarn can be spun) and strength-twist relationships among others, is another important service. But the value of the independent textile research organization doesn't end with evaluation of new fibers. Even after a fiber is comfortably established, processing studies may often prove highly rewarding.

Du Pont, for example, materially reduced its nylon staple processing problems as a result of a recent N.C. State project. The culprit was too many neps, or fiber tangles. After six months' work the neps were gone, carding production tripled in scores of nylon processing mills.

Mushrooming demand for testing and evaluation, sparked in recent years by the flowering of the synthetics, has doubtlessly played a large role in the development of textile research centers. But there's another side of the story—one that explains much about the past, paints a bright picture of prospects.

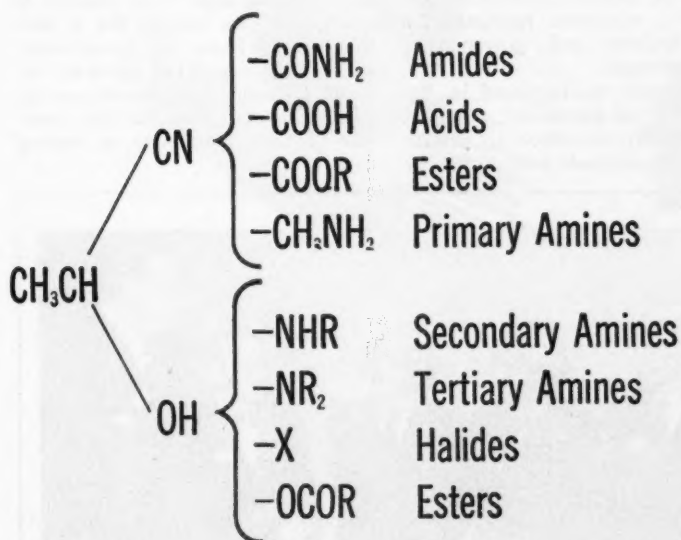
A N.C. State spokesman sums it up like this: "The volume of work already done on synthetics has developed know-how that can be valuable to any would-be fiber producer. Also, fiber men need answers—and need them fast; when sample lots are shipped to mills for evaluation, it often takes weeks to get the desired information. And even then, producers suspect they may not get the whole story, only what the mill feels like telling them.

"Our research department can start raw fiber through the openers in the morning and have the yarn spun the same afternoon. And, unlike the situation in many mills, producers can go along and watch their fibers perform all along the line. Still another angle is that textile equipment and staff cost money; a highly useful Instron electronic tensile tester, for instance, runs to more than \$10,000. We can do the evaluation job at a cost (\$6

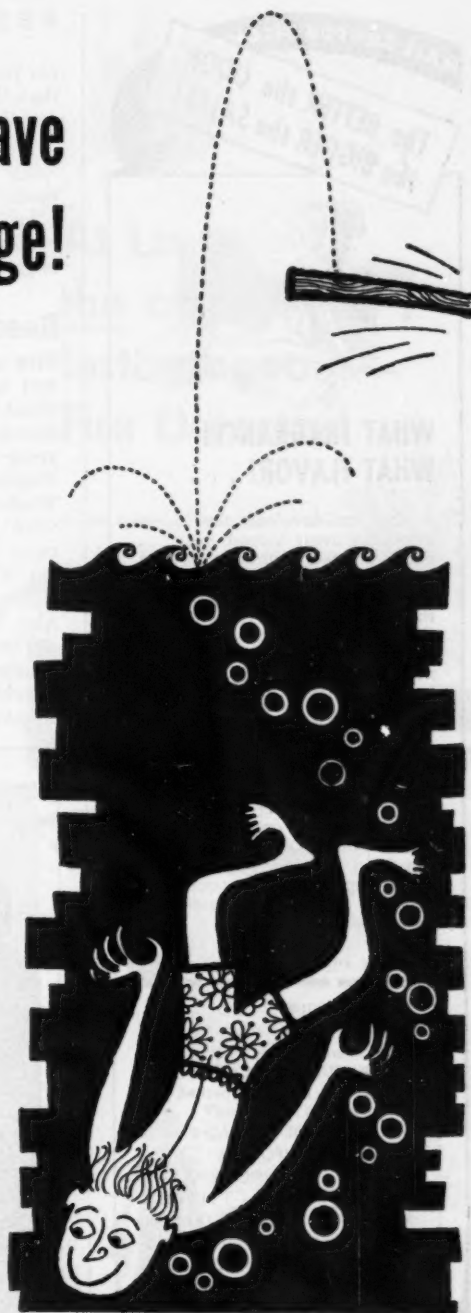
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RESEARCH

per processing hour) that's a lot lower than that the producer would have to pay if he did his own job."

It's plain that these attractions are losing none of their appeal for synthetic fibers people. N.C. State's School of Textiles is putting in two much-needed new spinning labs to augment the five now going full steam.

Research Malady

Five of the nation's top research men met in Washington recently to talk about the future of fundamental research. Their verdict: the golden goose is gasping for breath.

Present at a symposium sponsored by Washington Chemical Engineers Club were moderator Merle Tuve, Vannevar Bush, industry spokesman Marvin Kelly, education representative Julius Stratton and government's Alan Waterman.

The malady, as diagnosed by the panelists, is an insufficient basic research reserve nourished by an increasingly inadequate budget. By way

of a case history, the forum pointed their collective finger at figures gathered by the National Science Foundation: from the \$2-billion federal government research allocation, basic studies will receive only \$140 million, while the remainder will go into developmental and applied research.

Even more pertinent is the fact that in the past the U.S. has largely depended on Europe (CW, Nov. 8, '52) for fundamental research. And during World War II, the U.S. dipped into the inventory of American and European basic research, developed many of the ideas 'ahead of time'.

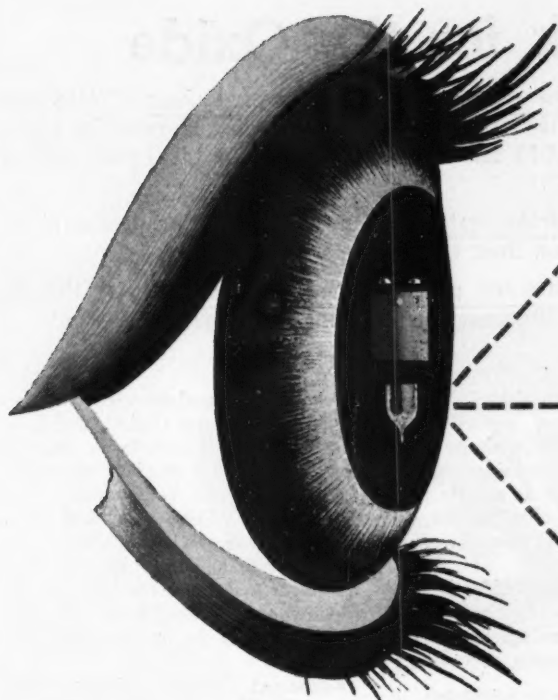
All panelists agreed upon the remedy: more money. And this would have to come from government and industry because university endowments, where major basic research is under way, are falling. But it isn't that simple. Even now, government and industry support of university research is causing apprehension among those who most fear that the reservoir of basic knowledge is running dry.



All Star Lineup for Opening Day

YOU WOULD BE HARD PUT to find a more distinguished company of scientists gathered under one roof. They are (from left) Nobel Prize Winners Edward C. Kendall, Sir Alexander Fleming, Selman A. Waksman and Otto Loewi, and the roof—in this instance—belongs to the spanking new research center of Merck Institute for Therapeutic

Research, Rahway, N.J. On hand to brief the all-star quartet at the recent official dedication is (right) George Merck, chairman of the board of Merck & Co. and president of the institute. The one-story structure is air-cooled, L-shaped, of brick and reinforced concrete, with 75 rooms and 35,000 sq. ft. of floor space.



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PRODUCTION

Outlook for the Oxide

Ethylene oxide, tied to the apron strings of ethylene glycol and polyethylene, is due for a whopping increase by 1955. Capacity—now 740 million lbs./year should hit 1,065 million lbs./year by 1955.

And for the first time, more oxide will be produced by ethylene oxidation than via ethylene chlorohydrin.

These are the processes that will contend for the increased output. Here are the differences, the pros and cons:

Almost overlooked in the mad dash for new polyethylene capacity has been the status of co-product, ethylene oxide. It's rightly considered a co-product, too, for just as caustic production is tied to chlorine output, plans for oxide parallel plans for polyethylene.

Here's why: unconverted* ethylene from a polyethylene plant makes an ideal feed stock for an ethylene oxide plant. Du Pont, of course, recycles its

ethylene to produce more polyethylene. But Union Carbide and Carbon is putting its faith in the conversion of unreacted ethylene to oxide, alcohol or other compounds. And chances are, Dow Chemical and others will follow Carbide's suit.

So despite a rather disappointing season for makers of ethylene glycol, principal outlet for ethylene oxide, the oxide is slated for a whopping increase.

CHEMICAL WEEK estimates that about 690 lbs. of oxide were produced in 1952 and that about 740 lbs.

* Conversion of ethylene to polyethylene is about 25% per pass, said Consultant Roger Williams (New York) before a gathering of the American Institute of Chemists last week.

Estimated Plant and Production Costs Via Lummus' Oxidation Process

Output	37.5 ethylene oxide	30 water solution ethylene oxide, 10 ethylene oxide	18.75 ethylene oxide	6 1/3 ethylene glycol, 17.8 ethylene glycol
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Plant Costs (Above figures in million lbs./year)

Ethylene Oxide Reaction Section	\$2,925,000	\$2,925,000	\$1,925,000	\$1,925,000
Oxygen Plant	1,250,000	1,250,000	825,000	825,000
Initial Catalyst	345,000	345,000	173,000	173,000
Purification Section	1,325,000	1,075,000	867,000	700,000
Ethylene Glycol Plant				625,000
Totals	5,845,000	5,595,000	3,790,000	4,248,000

Manufacturing Costs (¢/lb. of product)

Materials				
Ethylene	5.42	5.08	5.42	5.08
Chemicals	.02	.02	.02	.02
Catalyst	.04	.38	.34	.38
Utilities	.41	.39	.41	.39
Direct Operating Labor	.45	.42	.77	.73
Interest etc.*	2.23	2.05	2.88	2.59
Totals	8.57	8.34	9.84	9.19

* Interest @ 4.5%; maintenance @ 8%; inventories @ 0.8%; taxes, insurance and land rental @ 1.0%.



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PRODUCTION

Chlorohydrin Plants

Company	Plant	Estimated Capacity by mid-1953 (Millions of Pounds)	Estimated Capacity by 1955
Carbide and Carbon	S. Charleston, W. Va.	90	90
Dow	Midland, Mich.	20	20
	Freeport, Tex.	130	160
Jefferson	Port Neches, Tex.	100	100
Wyandotte	Wyandotte, Mich.	20	20
Mathieson	Doe Run, Ky.	75	100
Totals		435	490

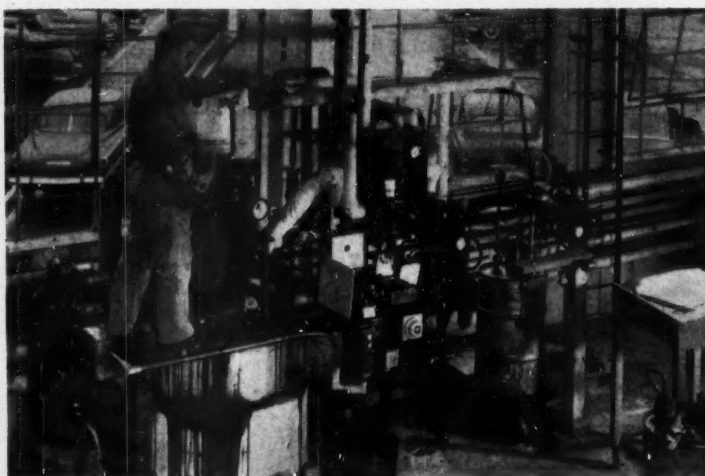
Oxidation Plants

Carbide and Carbon	S. Charleston, W. Va.	20	20
	Texas City, Tex.	150	150
	Whiting, Ind.	70	70
	Institute, W. Va.	70	70
	Seadrift, Tex.		150
	Torrance, Calif.		50
Jefferson	Port Neches, Tex.		30
Allied	Orange, Tex.		35
Totals		310	575
Totals		745	1,065

will be produced in 1953. It seems a safe bet that by 1955, Defense Production Authority's production goals will be realized (*see box*).

Several other firms have toyed with the idea of producing ethylene oxide.

Hancock Oil, for example, has been readying plans for a California plant for several years. But its certificate of necessity has expired and for it to get any tax writeoff assistance, a new certificate would be required. At least

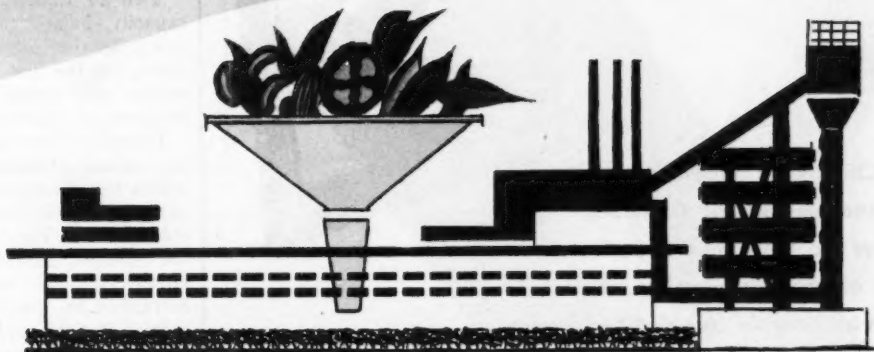


Dedicated to Improvement

NOT OVERLOOKED in the dedication of Godfrey Cabot's new lab (CW, May 16) was the area dedicated to pilot-planting shown above. The two-story high, 1,500-sq.-ft. area has been set aside for testing new

products and new processes. But whether it's proving out a new process or an improvement on an old one, the goal, says Cabot, is always the same: improvement or creation at the manufacturing level.

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PRODUCTION

two petrochemical groups have also evinced interest in oxide production. But the best guess at present is that by 1955, the only new producer will be Allied.

Two to Choose From: The new capacity, in any case, carries significance to the process engineer; because, for the first time, most of the output will come from the direct oxidation of ethylene.

Basically, there are two processes for making ethylene oxide. One involves the chlorohydrination of ethylene, then hydrolysis of the resulting chlorohydrin. The other depends on the straight oxidation of ethylene. Historically, the former process has accounted for the lion's share of the output. But the oxidation method has been quietly catching on, and by 1955, the pendulum should swing the other way.

Two big contracting firms, Vulcan Engineering (Cincinnati) and Lummus (New York City), moreover, have been offering new processes to prospective oxide plant builders. And both are based on direct oxidation of ethylene.

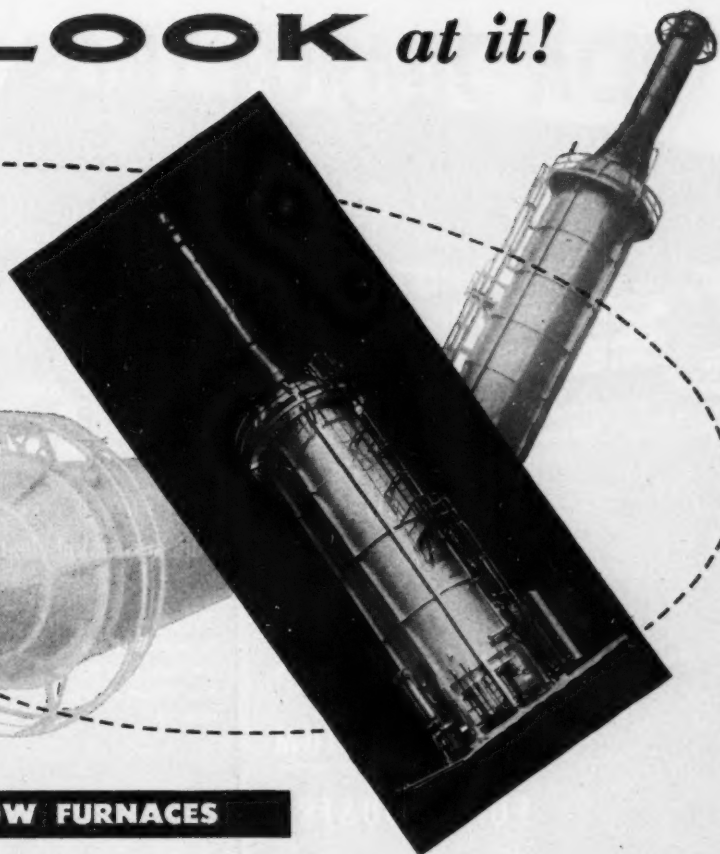
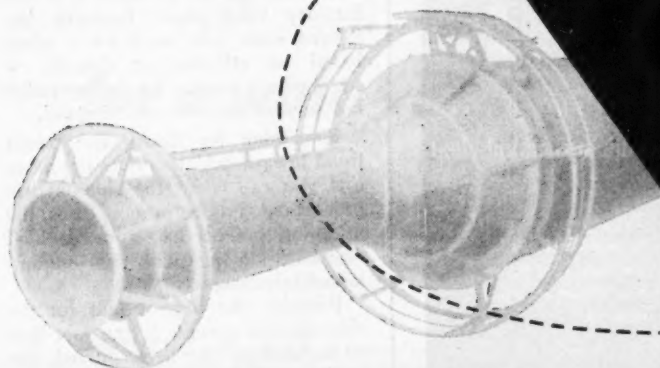
Ethylene oxide, discovered in 1859 by Wurtz*, was not produced commercially until 1925. At that time Carbide—using a process developed by its renowned researcher (now director of Union Carbide), George Curme—started turning it out in its South Charleston (W. Va.) plant. The first plant employed a chlorohydrin process, and in 1937, the firm brought in its first oxidation plant. Carbide, which has had a good chance to study both, has indicated a strong preference for the oxidation process.

In the chlorohydrin process, ethylene is reacted with hypochlorous acid (which is formed by bubbling chlorine through water). The product is then sent to the hydrolyzer where it's treated with lime slurry at elevated temperatures. Principal product is, of course, ethylene oxide, although small amounts of ethylene dichloride can be recovered.

In the oxidation process, ethylene in the vapor phase reacts with air in the presence of a silver catalyst to form ethylene oxide. One difficulty with the process is that the reaction is highly exothermic; close temperature control has been a problem. And that's where Vulcan comes in. It has taken over the basic research work done by Atlantic Refining and developed a commercial fluid-bed process. In fixed-bed reactors, the usual method

* Who thought that ethylene oxide could not be produced by the direct combination of ethylene and oxygen.

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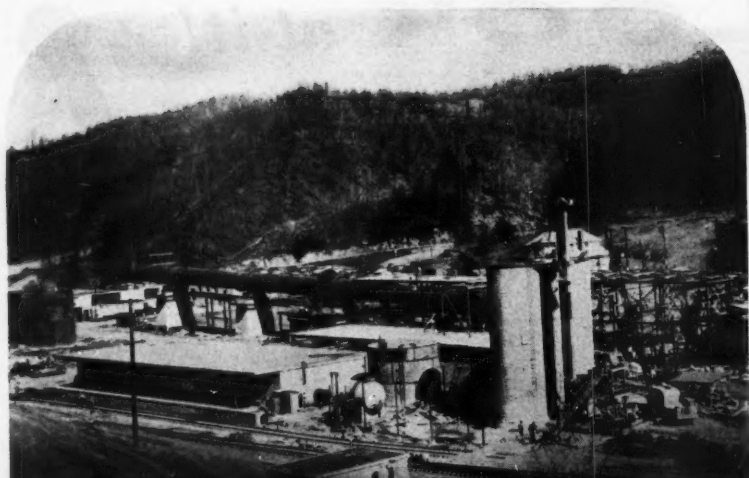
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PRODUCTION

of removing heat is to place the catalyst in narrow vertical tubes surrounded by a circulating coolant.

Vulcan, however, figures that it can do the job easier and more efficiently with its fluid bed. But the contact time in the oxidation process is critical, and to avoid back-mixing of catalyst, Vulcan has worked up a "confined" fluid bed that is simply a large number of parallel, vertical tubes.

Lummus is licensing a fixed-bed process developed by Shell Development, and proved by Shell in a 300 lbs./day pilot plant. Lummus has figured costs (see box) for a plant based on ethylene at 4.6¢/lb. It recommends oxygen for the operation but says air may be used instead.

Something for Each: The recent trend toward oxidation does not mean that you can count the chlorohydrin process out. For, as in most cases, the oxidation process has some decided drawbacks along with its unquestioned advantages.

Probably the biggest plus for the chlorohydrin process is the fact that its technology has been proved, the book on it has already been written, while no company—outside of Carbide—has had any extensive commercial experience with the oxidation method.

Moreover, the capital investment for an oxidation process plant is considerably higher than for a comparable plant using the chlorohydrin process. And yields for the chlorohydrin process are about 30% higher; operating costs (excluding raw materials), lower.

On the other hand, a plant using the oxidation process encounters none of the corrosion problems inherent in making chlorohydrin. Also, the fact that no chlorine or lime is required more than compensates for the lower yields in the oxidation process.

Raw materials and yields, of course, will vary with the exact process used. But Skeen has given an estimate* that breaks down like this:

- In the chlorohydrin process, raw material requirements to produce a pound of oxide are 0.9 lbs. of ethylene, 2.1 lbs. of chlorine and 2.0 lbs. of lime (10% CaO). In the oxidation process the raw material requirements for a pound of ethylene oxide are 1.2 lbs. of ethylene and 610,000 cu. ft. of air.

With ethylene selling for approximately 5¢/lb. (Lummus based its cost estimates on ethylene at 4.6¢/lb.), the raw material costs for the oxidation process are just about half those for the chlorohydrin process.

If, however, cost of ethylene should

* In Chem. Eng., July, 1950.

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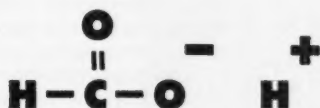
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PRODUCTION

continue to soar relative to the cost of chlorine, this difference would become less apparent. What's more, money is relatively cheap right now; but should we encounter a period of deflation, the added investment for an oxidation plant would take on more significance.

In the final analysis, then, any prediction on the future of ethylene oxide processes must take into account three factors: cost of ethylene, cost of chlorine, and cost of money. But technologically, the oxidation process—which has already made great strides in a relatively short period—seems to offer the greatest area of improvement. Developments like Vulcan's fluid-bed technique should improve the yields. And the expert consensus is that the oxidation process will eventually become the method of choice.

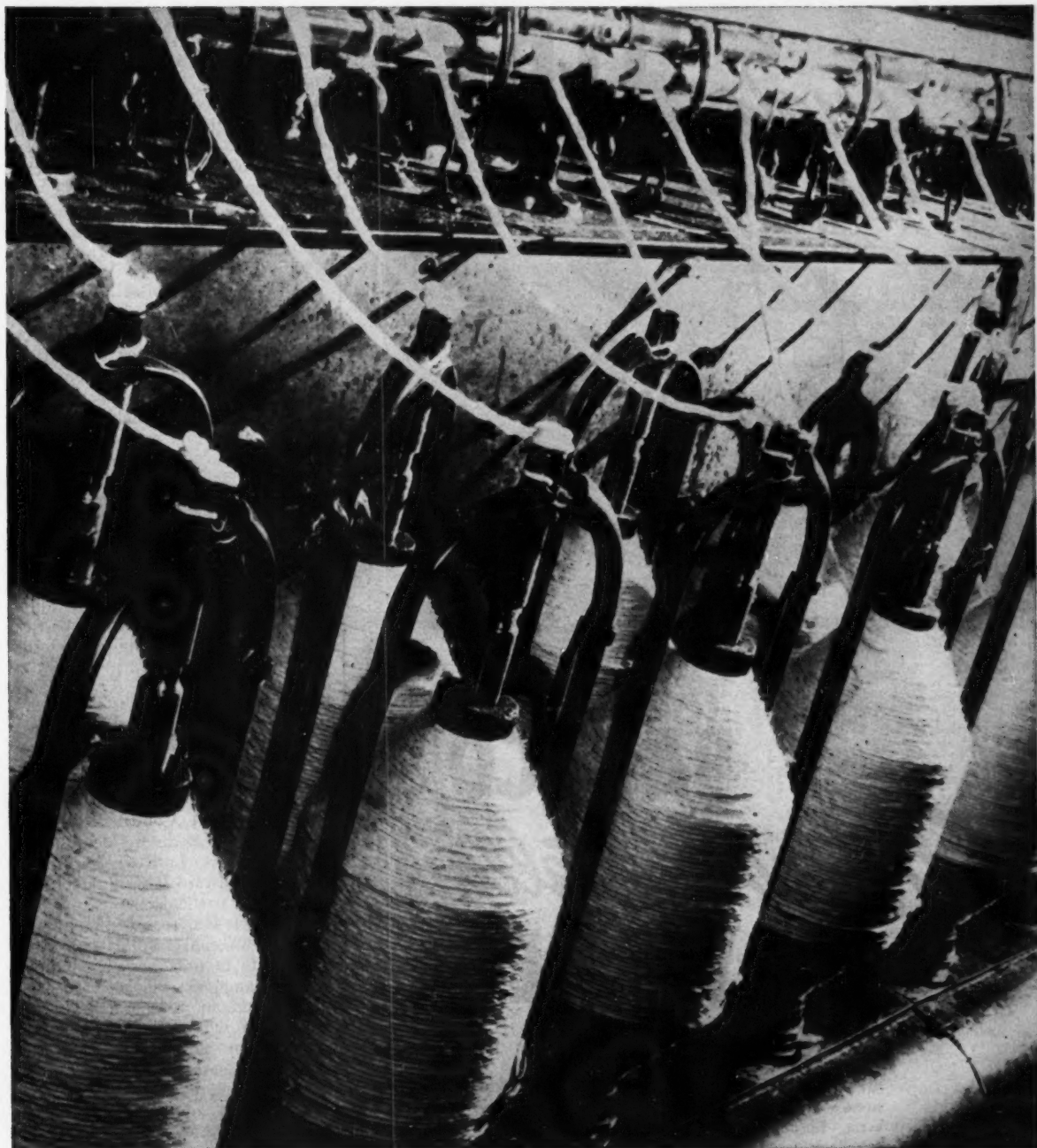
Sharing the Spotlight

Optimism on both coal and oil keynotes the meeting of the Canadian Institute of Mining and Metallurgy in Edmonton. The audience learned that experimental work on Alberta's vast tar sands will end up in commercial development, and Canada may eventually become self-sufficient in oil. But coal will continue as an important source of energy.

Statements on the tar sand development came from the Alberta Research Council's K. A. Clark, who reported that activity had been spurred by the 1950 report to the Alberta government by Toronto oil consultant, S. M. Blair. According to Blair, commercial development is economically feasible; and the government has already signed agreements involving areas of 50,000 acres apiece. Exploration will be undertaken by major oil-producing companies.

N. E. Tanner, former Alberta Minister of Mines and now president of Merrill Petroleums, said that if oil development continued at the present rate, Canada would not only become self-sufficient but also would be able to export oil to other North American countries. To prove his point, he reported that the most conservative estimate of reserves in the McMurry oil sands is 100 billion bbls. These reserves, he says, exceed those of the U.S. by 55 billion bbls.

R. H. C. Harrison, of Calgary, president of the Canadian Petroleum Assn., told the gathering that about \$1 million a day was being sunk on oil and gas development in western Canada. His estimate: Canada will be self-sufficient in oil, possibly inside of five years.



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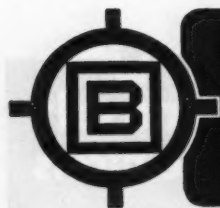


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PRODUCTION

Sold on Coal: Optimistic reports on oil did not, however, dim the enthusiasm of coal's proponents. C. L. O'Brian, of the Dominion Coal Board, reported a study by the board, said the market for coal will remain close to its current level until 1965, then increase sharply for 10 years. (The study presented at the meeting is the Canadian counterpart of the U.S. Paley report.)

Discounting theories that the demand for coal is receding, the study points out that even if the most optimistic predictions for oil and gas production are realized, the coal market in 12 years will be as great as it is today. On the other hand, failure by a moderate degree to meet those estimates would hike the coal market by 17 million tons/yr.

Chimed in J. E. Oberholtzer, Alberta Deputy Minister of Labor and Industries: "Coal one day will return to greater prominence in western Canada, both as a source of energy and as a raw material for chemical industries. In power production particularly, coal is becoming a preferred fuel."

Urea Updated

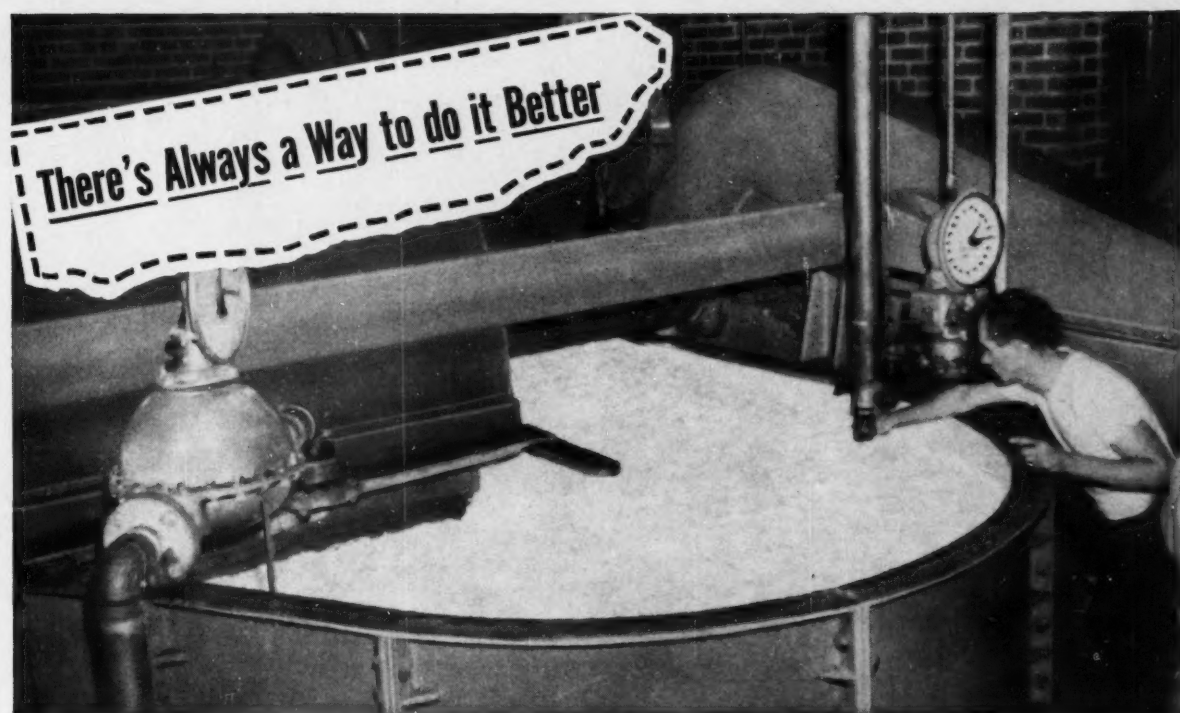
Last year, when CW presented a process roundup on urea (Dec. 13, '52), Chemical Construction Corp. was unwilling to discuss details of its new synthesis. Last week Chemico President Edward Powers sketched in operational particulars.

Briefly, it is a recycle process said to give 76% conversion of ammonium carbamate to urea per pass with an over-all ammonia efficiency of 97%. Excess ammonia is separated as a gas, condensed without compression and recycled by pumping. Unconverted ammonium carbamate is decomposed into an ammonia-carbon dioxide gas mixture; the ammonia is separated and then recycled.

Among the specially designed process equipment is a granulator with a special spraying device that produces uniform spherical pellets with only minor recirculation of off-size product.

Other features, says Powers, are low corrosion, simple and efficient recirculation of ammonia and the increased conversion to urea not requiring any increase in power consumption.

As mentioned last December, Sumitomo Chemical Co.'s (Japan) Chemico-engineered urea plant pioneered most of these process details; and the latest word is that the company is now planning to triple its capacity.



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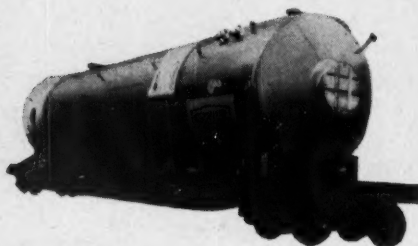
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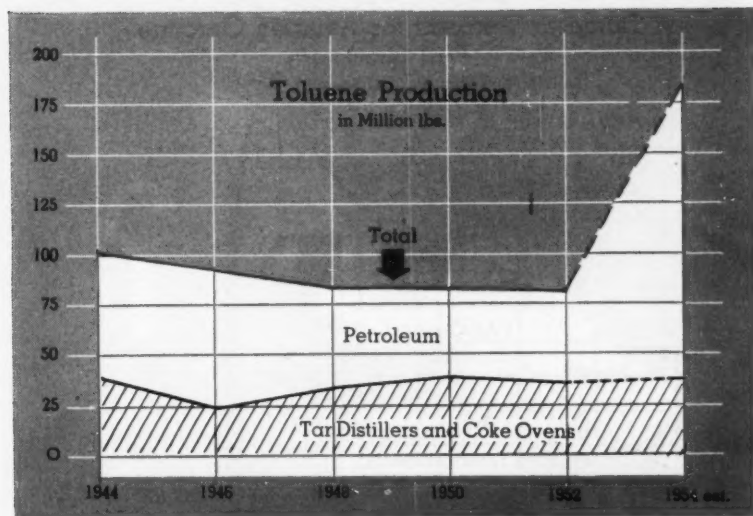
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VITAL TOLUENE OUTPUT: From coal, stable; from oil, a gush.

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Toluene supply, now tight, may get even tighter as the government siphons off 60-65% of the coal-derived material, and possibly ups its petro-toluene take from 70% to a high 90%.

History repeats itself when mounting aviation gasoline and TNT production again team up with expanding industrial finishes, other uses, to spark new capacity.

If it's true that in times of national emergency most chemicals go to war, then it is also a fact that toluene leads the attack. For prime toluene outlets have been—and are—trinitrotoluene (TNT) and aviation gasoline.

Although this aromatic hydrocarbon is currently sporting a "short" label in the chemical market place, observers see little cause for defense concern. Reason: if the toluene pinch becomes hard enough to threaten national security—e.g., in the event of an all-out shooting fracas—toluene output would skyrocket, satiate war-spawned demands in a matter of months.

For obvious security reasons the toluene picture must be painted with broad, not too revealing strokes. But from available information a pattern does emerge, outlining the past, present—and to a certain extent—the future toluene situation.

The Past: Prior to World War I, production of coal-tar light oil, from which aromatics are recovered, was trotting along at a steady 20-million gal./year clip. Although the industry more than tripled production of the

light oil to a hefty 65 million gal. in the last year of the war, the expansion was not enough to satisfy demand for toluene needed for TNT. It was then that some petroleum-derived toluene first stepped in to augment the supply from coal tar.

The emergency over, and because of economic reasons, this petro-toluene production dropped to practically nothing.

In the so-called peace period between wars, coal tar continued as the principal source of toluene, turning out—and at a relatively low price—more than enough to satisfy existing demand. For instance, with a potential supply of some 35 million gal. from coal tar, toluene production hit a little more than half that amount by 1939. The paint, varnish and lacquer industry was number one consumer, taking roughly 75% of toluene output for solvents and thinners.

Infamous Strike: The attack on Pearl Harbor was the spark that set off a repeat performance of toluene need and production. Sudden-bloating TNT and aviation gas requirements

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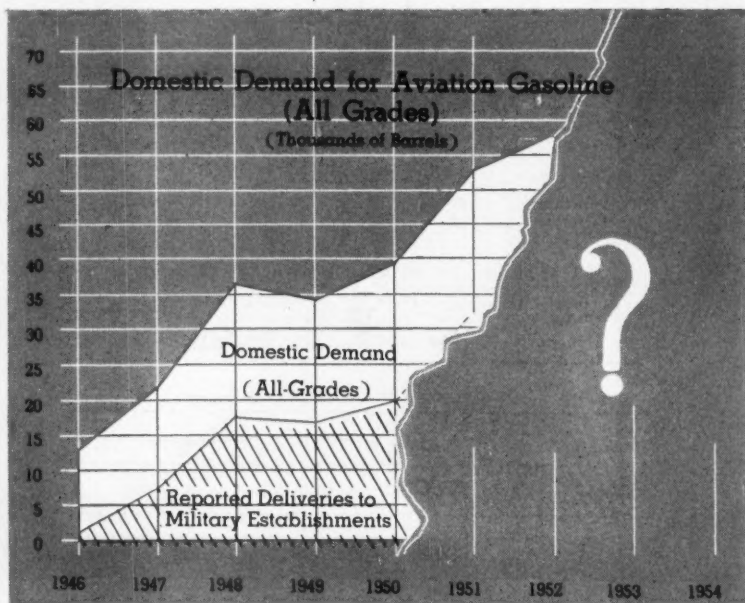
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AVGAS DEMAND: One spark plug for toluene production.

had coke oven sources panting to supply the essential toluene.

And again the petroleum industry, with a variety of processes (principally hydroforming) jumped into the breach. Toluene production zoomed, reached an all-time high in 1944 of almost 135 million gal. This was exclusive of amounts produced at petroleum plants under Ordnance control. Though exact figures are not available, of course, one guess is that at its World War II peak, total U.S. toluene production—including that from Ordnance-controlled plants—may have reached a staggering 400 million gal.

An estimated end use pattern of the times graphically illustrates the shot in the arm war-born needs gave toluene production:

**Toluene End Use Pattern
1944 (est.)**

Explosives, direct military	77%
Aviation gasoline (including military)	17%
Protective coatings, solvents, saturants	2%
Dyestuffs	2%
Miscellaneous (including chemical use)	2%

With the cessation of hostilities, toluene demand expectedly plummeted. How dramatic the decline is indicated by these government-published facts on domestic demand for all grades of aviation gasoline:

• By the end of 1945 (VJ year), demand decreased to nearly 117 million bbls. of avgas, dropping from the war-time peak, 132.6 million bbls. the previous year.

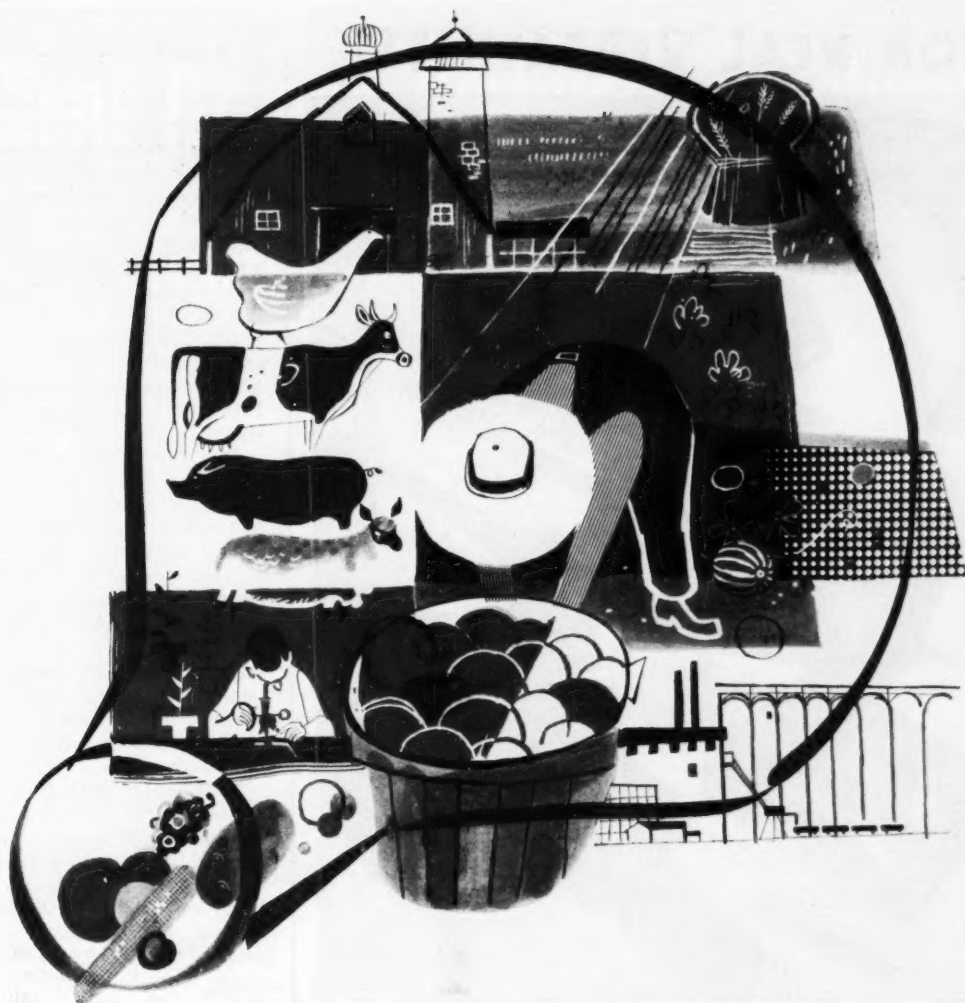
• And during VJ year plus one the figure became a trifling 13 million—an almost 90% falling-off.

As after World War I, the petrochemical industry again bowed out of the toluene-producing picture; its reformers reverted to the peacetime function of supplying the gasoline-starved American motorist.

In the meantime, toluol from coke oven operators and tar distillers—using purchased coal tar and oil- or water-gas tar—consistently maintained a 36-37 million gal./year output level. Without the TNT maw to fill, this quantity was ample for most civilian requirements. For toluene, unlike benzene, had relatively few nonmilitary outlets.

Paint and lacquer makers, on the outside looking in during the war, as far as toluol supplies were concerned, returned to the market place as prime consumers. The upswing in production of automobiles, appliances, other lacquer-consuming industries, provided a more than certain outlet for the steady 3 million gal./month of the coal-derived aromatic.

And there were other uses, comparatively small but with fair-to-middling prospects of becoming important toluene customers. Just prior to the Korean outbreak, toluene had donned the mantle of a chemical



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building block. Fair amounts were taken for cresols, and as the starting point of many derivatives for fine chemicals, dyestuffs and drugs.

As a raw material for large volume chemical manufacture, toluene showed some expectations as a potential benzene challenger in at least two fields; alkyl toluene sulfonate for detergents; vinyl toluene for synthetic rubber and paints. Though the former use flopped as a benzene battler, the latter—opposing benzene-derived styrene in some fields—may still turn out to be a substantial outlet.

Dow Chemical Co., which received a National Production Authority certificate of necessity to undertake a \$10-million vinyl toluene project, should begin harvesting a return on its new product sometime this year. One industry source sees Dow stepping into the market for some 700,000 gal./month of toluene by the end of the year. Future increases in consumption, of course, will depend on vinyl toluene demands as a styrene replacement in synthetic rubber, paints, varnishes, other uses.

Toluene Updated: Today, despite resumption of Korean truce talks, toluene supply is once more being pinched by a double-pronged demand squeeze. Exerting the greater pressure by far are renewed needs of the armed services. Now-humming government projects such as the Kankakee Ordnance Works at Joliet, Ill., and the recently reopened Volunteer Ordnance plant at Chattanooga, Tenn., are gulping the bulk of coke oven-born toluene.

Government directives, issued periodically since late last year, assure filled pipelines to these installations. On the other hand, industrial consumers, now limping along on makers' allocations, are raising a howl for more toluene in order to answer mounting calls from auto makers, other lacquer users.

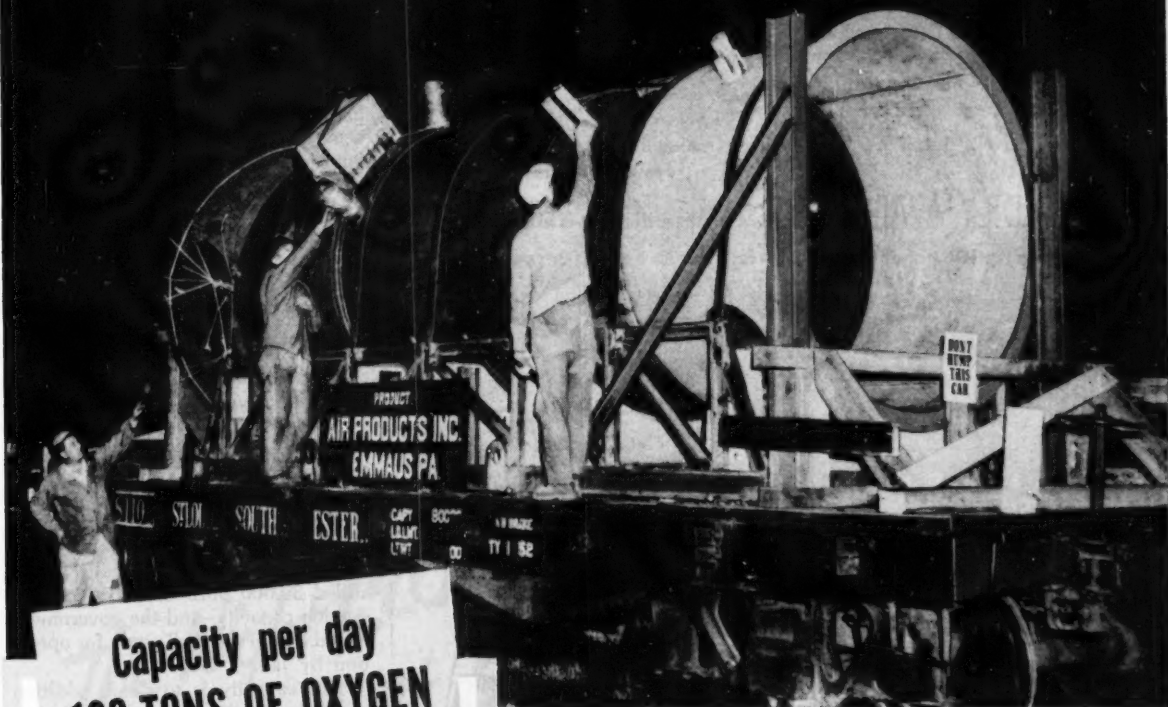
Some toluene consumers, in an attempt to circumvent the shortage, are switching to other materials in their formulations. Thus, butyl derivatives and xylols are getting an added fillip as diluents in many lacquer make-ups.

(Now, xylol is also moving into a tighter supply position because of increased demands as a toluol substitute. And, too, the toluene dearth has kept petroleum producers' equipment busy, thereby cutting down distillation time allotted for xylol.)

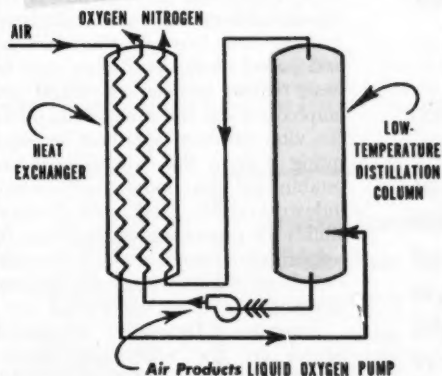
Petro Salvation Again: With coke ovens already going full blast to turn out their 36-plus million gal./year of toluol, the U.S. once more looks to

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the petroleum industry to supply the current—and future burgeoning—toluene demand from industry and from the government.

Though pinpoint figures must not reveal how big a customer Uncle Sam is—and will be—one toluene consumption indicator, aviation gasoline demand (see chart), does illustrate the upward trend. Note that just a couple of years ago military establishments accounted for nearly 55% of all domestic aviation gasoline demand in continental U.S. Of course, not all avgas is toluene-needed; large quantities of xylenes are also used for octane improvement. Hence, the figures here do not represent toluene consumption in avgas per se.

And military demand for aviation gas will not level off, at least not until 1957 or '58. So says the Armed Services Petroleum Purchasing Agency. For although the military is turning to jet planes to a greater extent, it is still ordering large numbers of propeller craft. These include transports and air tankers for refueling jets.

Another reliable indication of continuing need for the high grade fuel is the Office of Defense Mobilization's* recently set expansion goal for alkylate, the primary ingredient for avgas.

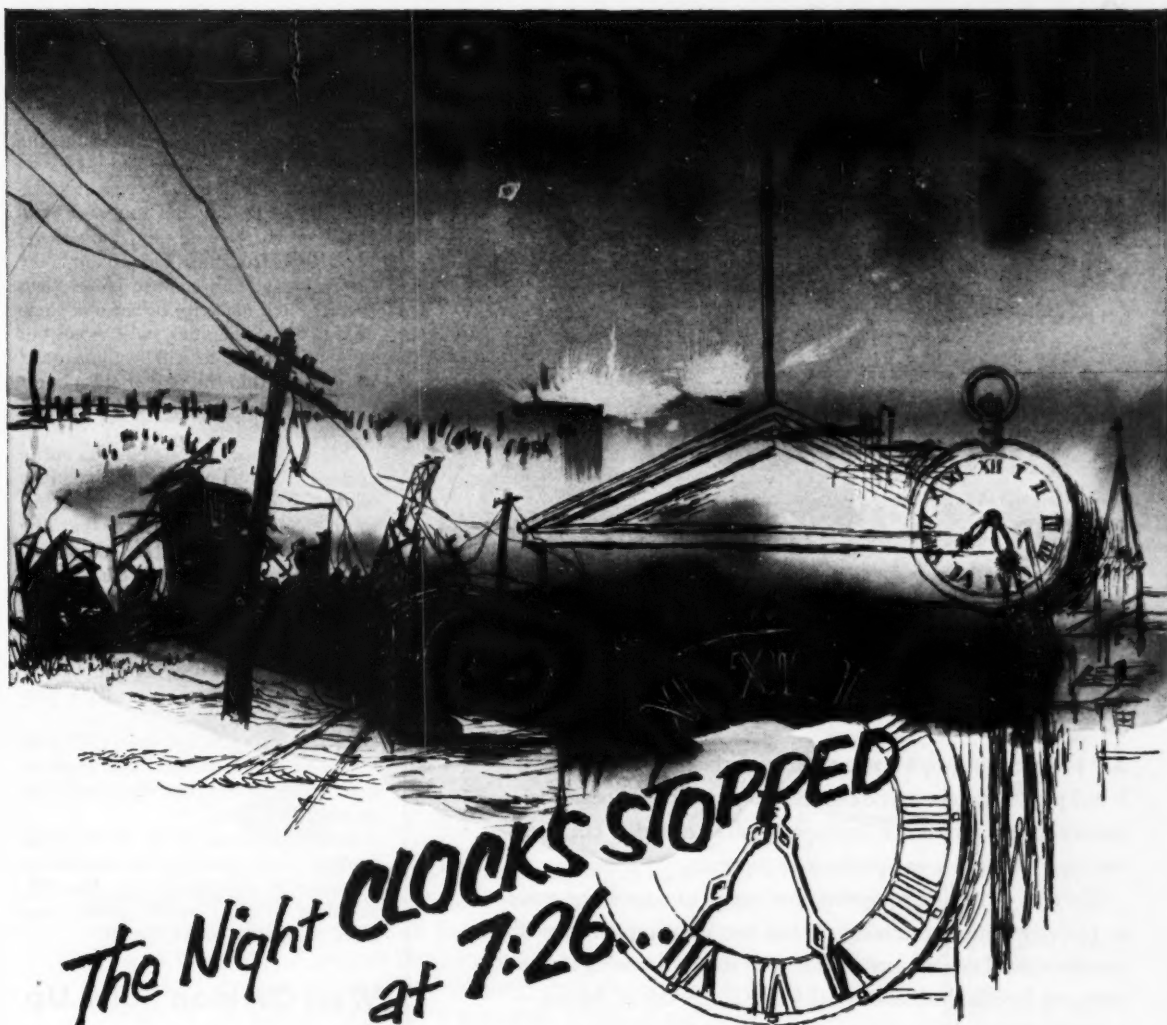
The new ODM target calls for an added 30,000 bbls./day alkylate production capacity—and the government would like to see it all ready for operation by Jan. 1, '55.

This capacity is to be in addition to existing facilities and to new installations now under construction.

However, what points up the government experts' contention that avgas consumption will inexorably rise (and with it the need for toluene) is this significant fact: heretofore, alkylate facilities have been considered as part and parcel of the expansion goal for basic refining installations; ODM now emphasizes the upcoming demand for the vital gasoline ingredient by separating it from the over-all goal and establishing an individual alkylate industry target. (Incidentally, responsibility of processing applications for certificates of necessity now falls under Petroleum Administration for Defense jurisdiction.)

Explosive Demand: Production figures for the other—and larger—government blotter of toluene, TNT manufacture, is also shrouded in mystery. But this much can be said regarding noncivilian demands. Currently the government is taking about 60-65% of the toluene coming from coal sources, and will take about 90%

* DPA's successor



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And you can bet there'll be no repeat of the munitions-shortage-in-Korea story that recently made the front pages.

At least one new petroleum installation is beginning to augment the nitration material supply from cokers. Shell Oil's Houston, Tex., plant, now producing at only a little better than half its rated capacity because of some equipment difficulties, will pour out toluene at close to a 33-million gal./year rate within the next three months or so—and the government is slated to gobble most of it.

This is almost as much as the entire amount of toluene being produced by all the coke ovens and tar distillers in the country—reassurance that the petrochemical industry can deliver.

And deliver it will. For early in the expansion program the Defense Production Administration set a toluene goal of 185 million gal./year by the first of Jan. '55—a whopping more-than-100 million gal. over 1951 production.

In September of last year, DPA said that certificates issued and applications on file at the time were sufficient to meet that goal.

But chances are, if the need arises, existing plants plus current expansions by major oil companies—e.g., Sun Oil, Standard (Calif.)—could dwarf even DPA's capacity target figure.

West German Sales Up

West German sales of chemical products in the first half of this year may exceed those for the corresponding period last year. Here's the pointer-out:

Total turnover in the first quarter of this year amounted to about 2,500 million marks (roughly \$625 million)—slightly more than the comparable 1952 period. Thus, at least the free German chemical industry has regained the level it had reached before the recent textile trade slump.

Sales in 1952 dropped from 2,460 million marks (\$615 million) in the first quarter to 2,239 million marks (about \$560 million) in the second quarter.

Chemical producers are also gleefully digesting these bright production index figures: in the first three months of 1953 the index hit 140 (1938=100), as against 128 last year. The West German hope, of course, is that production and sales are finally returning to a normal, steady development after the hectic period of excessive expansion that resulted from the Korea boom.

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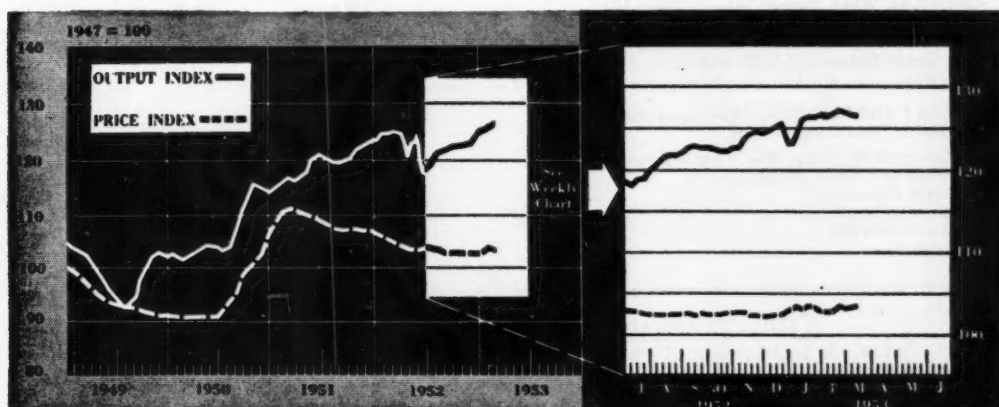
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CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

There may be very little a purchasing agent can do when makers find it necessary to boost prices of needed chemicals, but the little he can do, he does. And that usually boils down to stepping up company purchases before the effective date of the announced increase.

For here and there buying agents manage to have shipping dates moved up, squeeze under the higher-price wires.

And so it has been with soda ash. But while consumers stepped in heavily to beat the May 1 advance (15¢/100 lbs.), producers are gleefully noting the hike has not—as yet—slowed the buying movement to any appreciable extent. They see, too, no easing in the welcome strong demand.

The same happy atmosphere—at least from the sellers' viewpoint—seems to pervade the plasticizers market. Despite the recent 3¢/lb. jump in adipates prices (CW Market Letter, May 9), plastic processors keep coming back for more.

If the demand continues to mount, chances are plasticizers tags will be pressured upward again.

Here is an indication of the more-than-firm plastic materials market now prevailing. Although the primary adipic acid maker isn't exactly fighting off customers—even after the recent almost 7¢/lb. price hike—an old-consumer allocation system does relegate new buyers to the end of the line.

Resellers of imported adipic acid are also reaping benefits from the spilling-over demand—and will continue to as long as in-need buyers are willing to pay the current 44¢/lb. (c.i.f. NY) price. Domestic l.c.l. tag reads 37½¢/lb.

This week, most methyl chloride buyers will shell out nearly 3½¢/lb. more for the refrigerant grade—the first increase since July, '50, says one major producer.

The now-familiar “eases us out of the ex-price ceiling-manufacturing cost squeeze” is advanced as the reason behind the new prices: 42¢/lb. (cyls.) to refrigerator makers and 53¢/lb. to other consumers and service men.

MARKET LETTER

WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	126.6	126.5	124.0
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.2	104.2	103.1
Bituminous Coal Production (daily average, 1,000 tons)	1469.0	1458.0	1327.0
Steel Ingot Production (1,000 tons)	2259.0(est.)	2262.0(act.)	
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	251.1	251.2	233.3

MONTHLY INDICATORS—Wholesale Prices (Index 1947-1949=100)

	Latest Month	Preceding Month	Year Ago
All Commodities (Other than Farm and Foods)	113.3	113.4	113.3
Chemicals and Allied Products	105.5	104.2	104.8
Industrial Chemicals	117.0	113.9	116.8
Drugs and Pharmaceuticals	93.0	91.6	92.7
Fertilizer Materials	113.2	112.8	109.8
Oils and Fats	56.0	59.0	42.6

Carnauba wax also continues to lean toward the sellers' side of the fence. A tight on-spot supply situation, combined with a strengthening Brazilian market, is nudging prices upward.

Consumers will pay—albeit reluctantly—3-7¢/lb. more—depending on grade—this week than they did last week. The crude material is hovering around a new high level of \$1.12 to \$1.14/lb.—and is not always available even at that price.

On the other hand some chemical prices do move downward. Lower calcium cyanamide schedules may woo back a few errant users. At least, the major producer's \$7.50/ton slash late last week in granular cyanamide price points up current competition with other fertilizers and foreign nitrogen carriers.

Prices of some of the latter, e.g., ammonium nitrate, sulfate (20 percent N), are tagged at slightly more than \$51/ton, at the port.

The reduction in cyanamide goes into effect July 1, for delivery over the upcoming 1953-'54 fertilizer season. New schedules: granular, 100-lb. bags, \$55/ton; pulverized grades in bags, \$2.75/unit of nitrogen. The prices are f.o.b. plant.

The fats and oils market is in a bad fix—and it will get worse. That's one conclusion reached last week by Dept. of Agriculture economists. They predict that the current surplus, now aggravated by continued declining sales of soap, will really pile up this fall.

Further crystal-balling by government experts reveal:

- Only a 7 percent cut in cottonseed oil production. (This despite USDA urging farmers last year to reduce 1953 cotton plantings by 18 per cent.)

- Vegetable oils (used mainly for food) will fall about 0.1 billion lbs. below last year's 4.6 billion lbs. production.

- Inedible tallow and greases will manage to stay close to 1952's 2.25-billion lbs. figure.

It all boils down to this, says the department prognosticators: total supply of fats and oils will fall slightly, but demand is expected to drop sharply. Result: bigger surplus, softer prices.

At the moment the lead market seems to have firmed up after some recent hectic fluctuations. A flight price changed this week is the report from producers. Spot domestic material is now 12¾¢/lb. (N.Y.).

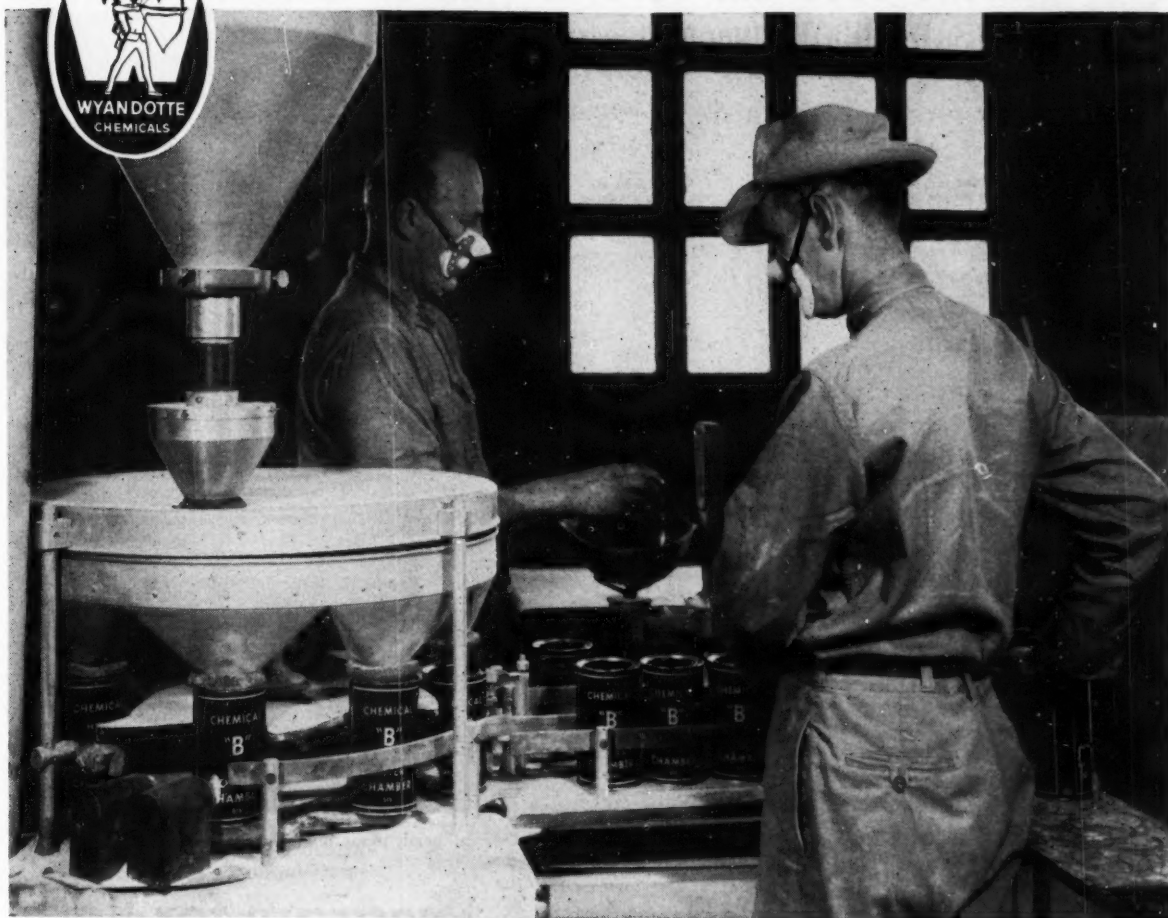
SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending May 18, 1953

UP	Change	New Price		Change	New Price
Boric Acid, blk., wks., ton	\$2.50	\$94.25	Methyl Chloride, refrigeration		
Borax, blk., c.l., wks., ton	2.50	35.75	grade, mfrs., cys., divd.	.034	.42
			Copper Metal, electrolytic	.0025	.2975

All prices per pound unless quantity is stated.



Dependable Source for Chemical Raw Materials



Packaging fire extinguishing powder at plant of National Foam System, Inc.

"for our fire extinguishing powders..."

We've bought Wyandotte Bicarb for 25 years!"

—A. D. HOLMES, *Purchasing Agent, National Foam System, Inc.*

"Since 1928, we have used millions of pounds of Wyandotte Bicarbonate of Soda in our chemical foam fire extinguishing powder," says A. D. Holmes, purchasing agent of National Foam System, Inc., West Chester, Pa., manufacturers of fire protection equipment and chemicals. "During all this time, we have found this product consistently uniform in particle size and of good quality. These characteristics provide for easy flowing and blending when used as an in-

gredient in our fire extinguishing powder.

"Wyandotte Technical Service has also always been dependable, which is very important to a company like ours doing a large international business in fire protection products."

Whether you use Bicarbonate of Soda in the production of fire extinguishing powders, foods, sponge rubber, drugs, cosmetics, or other industrial applications, you can depend on Wyandotte. Wyandotte

Technical Service will help you, too. Phone or write us. *Wyandotte Chemicals Corp., Wyandotte, Mich. Offices in principal cities.*

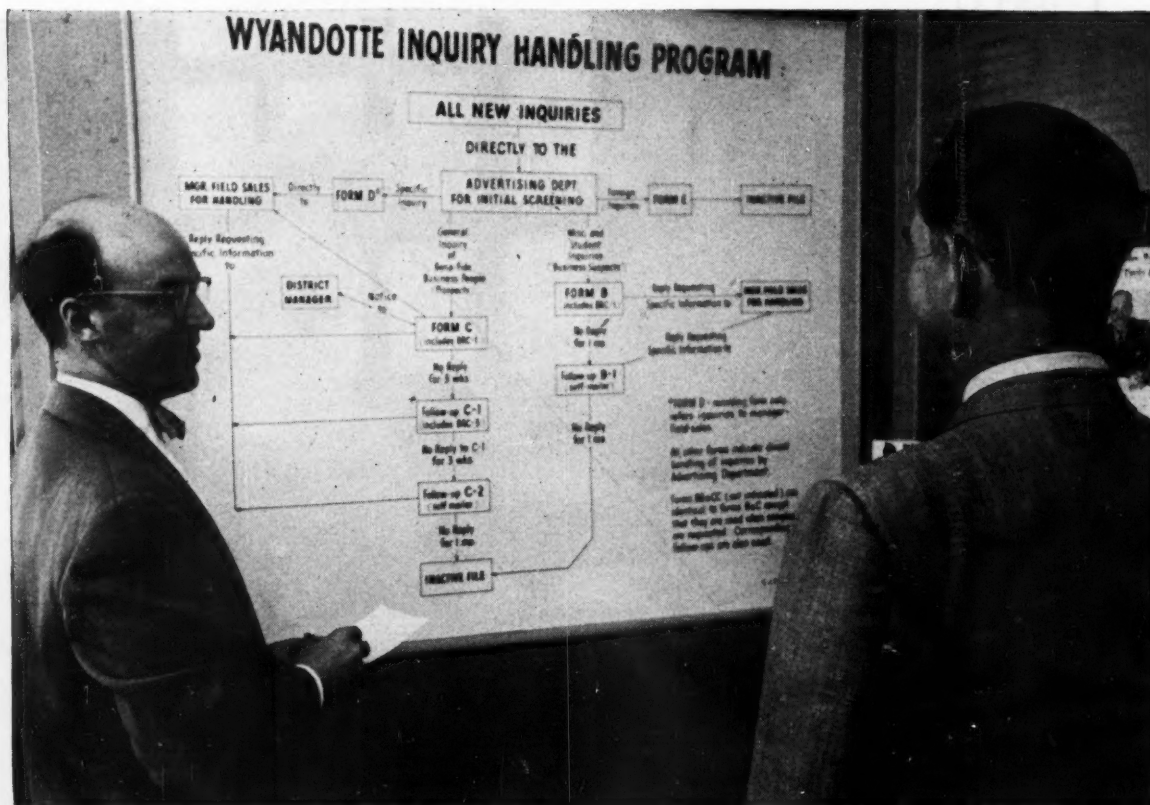


Wyandotte
CHEMICALS

HEADQUARTERS FOR ALKALIES

Soda Ash • Caustic Soda • Bicarbonate of Soda • Chlorine
Calcium Carbonate • Calcium Chloride • Glycols • Synthetic
Detergents • Agricultural Insecticides • Soil Conditioners
Other Organic and Inorganic Chemicals

DISTRIBUTION



FLOWCHART: Wyandotte's Corman Diehl (*left*), advertising department head, maps final changes in his inquiry system.

Prospects or Students—A Program for Both

An industrial advertising director is rarely off the horns of a dilemma. If his promotion pieces and ads are pulling attention, he is happily flooded with coupons, letters and inquiries. But this flood only compounds his mechanical problem of separating the "sales prospect" wheat from the "literature collector" chaff.

One company's attack on this puzzle has now passed successfully through its initial test period. Since early January, Wyandotte Chemicals has put its inquiry stream through a systematized, multichanneled screening process. The objective: to enhance the effective service Wyandotte salesmen can provide, and at the same time to give all inquiries, regardless of source, a maximum of courteous attention.

Other companies, of course, have long since dealt with their inquiry problem by instituting substantially similar systems. But Wyandotte's is noteworthy because it is built around these two oft-overlooked operating principles:

• No matter how differently the inquiry may be handled internally, the person who sent it must always feel that he is being given "the full treatment." Today's high-school student may be tomorrow's purchasing agent.

- The original classification must never be assumed to be correct. The machinery should allow for constant reviews leading to the "upgrading" of the inquiry.

Form Letter: To accomplish both objectives, a series of form letters (individually typed) has been devised. Mailed in accordance with a regular up-dating system, they provide a three-step program intended to give the inquiry every possibility of developing into a valuable contact—without overburdening the sales force with a plethora of field work.

The first screening is done within the advertising department itself. Here the foreign inquiries are separated for direct handling by the export department. And all notes containing specific requests for sales information

are passed along to the general manager of the field sales force for action by one of his sales offices or for routine answering by the headquarters group.

These two separations are relatively easy to accomplish. And there is little chance of misclassification. But the remaining two groupings call for careful attention. The problem is to divide between "business prospects" and "business suspects"—separating the vague inquiries sent in by both potential customers and the industrially curious.

This is often a difficult division. A scribbled post card might well have been penned by a harried plant manager. And a fancy letterhead does not necessarily mean anything more than a hopeful dream. By using the Thomas Register, Dun & Bradstreet, and other accepted reference sources, Wyandotte's advertising department makes its decisions.

Whichever classification the inquiry goes into, however, it is immediately (within 24-72 hours) answered. To

Rubbish Disposal is only ONE of the Cost Cutting jobs for the Dempster-Dumpster in your plant...



It's amazing, almost to the point of fantasy, yet so soundly real, what the minds of men in all types of industry have cooked up for more efficiency and reduced costs with the Dempster-Dumpster.

Hundreds of plants are handling materials of practically every description with one truck-mounted Dempster-Dumpster serving scores of detachable containers. Here are just a few. Oils, gases, and liquids handled in our Tank Type Containers . . . tools and equipment in our Tool Shed Type Container . . . containers on casters placed for receiving steel chips from lathes or at conveyors for receiving finished products . . . container with doors and windows, replacing shacks for plant guards or nightwatchmen . . . containers built to handle chlorinator ash residue of approximately 1500° F. and there are dozens more.

Containers are placed wherever material accumulates. When loaded each is picked-up, hauled and emptied (as illustrated above) . . . or load set down intact. The entire op-

eration is handled by only one man, the driver, by hydraulic controls in cab.

The containers are built in capacities up to 12 cu. yds. and each is designed to suit the materials to be handled—be they bulky, light or heavy . . . solids, liquids or dust.

One Dempster-Dumpster, with driver, does the work of 3 to 5 conventional trucks . . . eliminates trucks and crews standing idle . . .

eliminates rehandling of materials and increases efficiency and good plantkeeping.

If you have even any remote idea that this equipment could be adapted to your operation, by all means contact us because being without the Dempster-Dumpster System could easily be costing your company thousands of dollars annually. Manufactured and sold exclusively by Dempster Brothers, Inc.



One Dempster-Dumpster Handles All Containers . . . All Sizes . . . All Designs

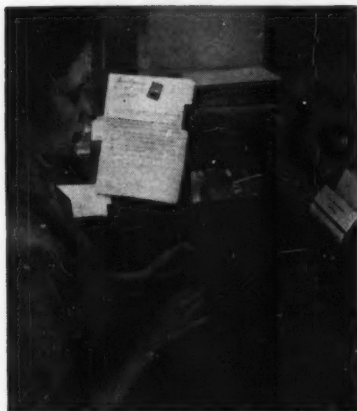
DEMPSTER BROTHERS, 253 Dempster Bldg., Knoxville 17, Tenn.



SCREENING: Day's mail is divided into four primary classifications.



DISCUSSING: Inquiries requiring specific answers are examined by Ad Director Diehl and M. A. Thompson, manager of the field sales force.



ANSWERING: "General" inquiries get prompt form-letter replies.

the outsider, both replies appear to be about the same. Both, for instance, contain self-addressed post cards for further questions. But the business-prospect inquiry also prompts a second letter—this one to the district sales manager or distributor agent, best situated to pick up the sales lead.

If at the end of three weeks, the advertising department has heard from neither the sales office nor the original correspondent, a follow-up letter is sent, again with a return post card. This is followed by a third letter—three weeks later—and then disposi-

tion to the files after an additional month of inactivity. The field sales force is kept informed on all of these steps. By notifying the advertising department at any time, the individual salesmen can call a halt to the chain of letters.

Meanwhile, the nonbusiness inquiry is handled—as a public relations project—by the advertising staff alone. If the return post card is received, it is reviewed for potential transfer of the inquiry to the business-prospect dossier (with notification to the field sales force, etc.). If, on the other hand, the



TRACING: Index cards and color tabs guarantee follow-up program.



EXPLAINING: Before the new system went into effect, Diehl explained it in detail to salesmen, whose suggestions shaped plan's final form.

THE PERKIN-ELMER INSTRUMENT DIGEST

A condensation of some articles in the Winter issue of THE PERKIN-ELMER INSTRUMENT NEWS, a publication of The Perkin-Elmer Corporation, manufacturers of scientific instruments—Infrared Spectrometers, Tiselius Electrophoresis Apparatus, Monochromators, Flame Photometers, Continuous Infra-

red Analyzers, Amplifiers, Astronomical Equipment, Thermocouples, Lenses, Crystal Optics, Special Designs for the Government.

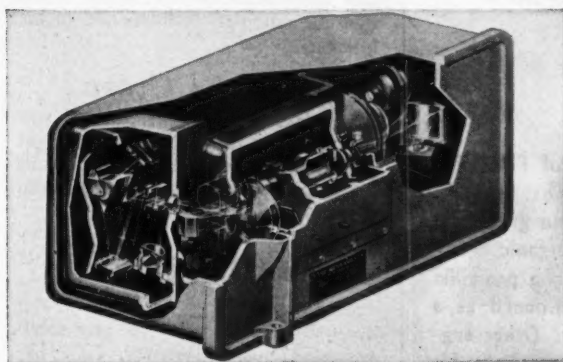
For further information, write The Perkin-Elmer Corp., Norwalk, Conn. Southern Regional Office: Lee Circle Building, New Orleans, La.

Norwalk, Conn.

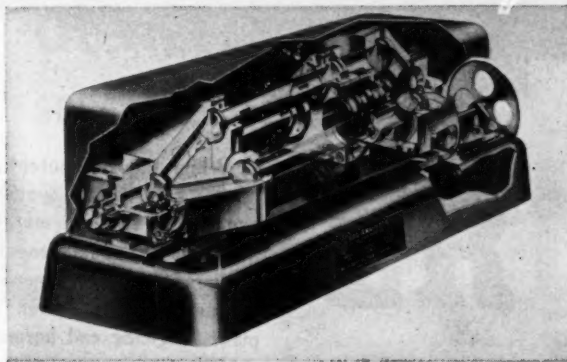
May, 1953

Vol. 4, No. 3

HOW NEW CONTINUOUS INFRARED ANALYZERS WORK



BICHROMATOR ANALYZER



TRI-NON ANALYZER

● **Background**—Perkin-Elmer helped the chemical industry take a big step closer to the day of the automatic processing plant when it recently introduced two new continuous infrared analyzers for chemical plants.

● **What They Do**—These new instruments continuously record the concentration of any desired component in a chemical process stream, regardless of how many other components are present. They allow conversion from batch to continuous processing with maximum efficiency at all times, since the operator always knows how much of the desired component is present in the stream.

● **How They Work**—They fit directly "on the process line." The concentration of the desired component is instantly and continuously recorded on a chart. Any variation in concentration, as shown on the recorder, is immediately compensated by regulating temperature, pressure, flow rate, or other environmental variables. These variables, in any single phase of a process, can now be controlled directly through automatic controls from the analyzer recorder.

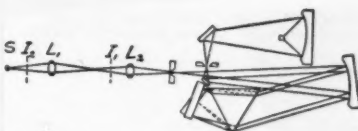
● **Advantages**—Prior to continuous analysis, a plant operator had to guess from certain dial and gage readings whether or not the process was moving along properly. But to know exactly what was in the process, he had to remove samples and send them to the lab for analysis. This meant lost time, and, where changes were needed, the waste of large chemical batches that had already flowed through. Continuous infrared analysis of the process stream will instantly record even minute changes.

*Trademark, The Perkin-Elmer Corporation.

● **Why Two Analyzers**—The two different instrument principles of dispersion and non-dispersion each has certain advantages and disadvantages depending on the application. Hence, Perkin-Elmer developed both types. Also, each plant problem is unique.

When analyzers are shipped from Perkin-Elmer they are sensitized and adjusted by the Application Engineering Group to meet the specific conditions of the plant for which they are destined. This Group is made up both of chemical and instrument engineers familiar with the design and operation of infrared equipment and plant problems.

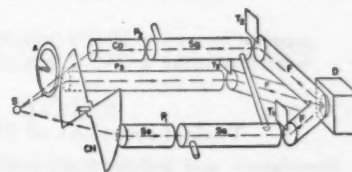
● **The Model 93 BICHROMATOR* Analyzer**—This analyzer permits the selection of two analytical wavelengths. It gives a continuous measure of the ratio of radiation present. It is a two-color wavelength analyzer, consisting of three basic units: source; monochromator and detector; sample cell.



Optical Schematic of BICHROMATOR Analyzer. Split Littrow mirror allows selection of two wavelength intervals.

● **Several Applications**—An obvious application is detection of water in liquid freon. A more complicated analysis is that of acetylene in the presence of CH_4 , C_2H_6 , CO and CO_2 .

● **The Model 105 TRI-NON* Analyzer**—This is a triple beam, non-dispersion analyzer for use where there is considerable interference between the analytical infrared wavelength of the component under analysis and other components in the process stream.



Cell paths of TRI-NON Analyzer can be filled with various components of the process stream. The instrument is sensitized to cancel out component interference.

● **Characteristics of Both Instruments**—Both are thermostatted to operate between 0° and 120° F. and mounted in explosion-proof cases that meet safety requirements. On each, the signal may be transmitted to a remotely located recorder. Both have sensitivity and stability superior to currently available analyzers. From the detector on, both have identical electronic components, all of which are designed as compact sub-units for rapid, simple field replacements. A unique testing device quickly isolates the faulty sub-unit.

● **Get the Complete Story**—A more thorough description, plus detailed performance data, can be found in the Winter 1953 INSTRUMENT NEWS. To receive your copy regularly, of this 8-page quarterly, write: The Perkin-Elmer Corporation, 820 Main Avenue, Norwalk, Connecticut.

KAY-FRIES

Phenylacetic acid



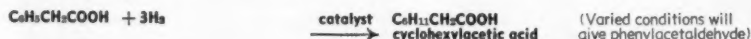
While the full potential of PHENYLACETIC ACID in synthesis has not been explored, a reactive methylene group has made it a valuable general organic intermediate. It is well-known as a penicillin precursor and has been mentioned as a plant fungicide and hormone. Other suggested uses are as an intermediate for drugs (antispasmodics, sedatives, antiseptics, and anticoagulants); perfume aromatics; and insect repellents. Kay-Fries also manufactures alkali metal salts of phenylacetic acid, both anhydrous and in solution.

KAY-FRIES SPECIFICATIONS . . .

purity • 99.0% minimum ash • .05% maximum
melting point • 74.5 C. minimum form • White flakes

Typical reactions of PHENYLACETIC ACID

Phenylacetic acid undergoes anhydride formation, chlorination to the acid chloride, esterification, amidation, in the normal manner of an organic acid.



TECHNICAL BULLETIN AVAILABLE

American-British Chemical Supplies, Inc.

Selling Agents For



KAY-FRIES CHEMICALS, INC.

180 Madison Avenue, New York 16, N. Y. •

Murray Hill 6-0661

DISTRIBUTION

post card is not received, a follow-up letter is sent, reading much like that used for prospective customers. This, too, accompanies a return post card that might lead to the upgrading of the contact.

A third letter is not mailed, however, and if there has been no response after two months have elapsed, the nonbusiness inquiry is put in the inactive file. But in the process, it has been given an open-minded chance to develop into a sales-making contact—and the correspondent has ample proof that the company is interested in his interest.

Whither the Green?

The advertising industry, which was an important factor in the over-night growth of chlorophyll interest, seems to be losing its fervor for the green attention-grabber.

In a recent poll of 200 ad-industry executives, *Tide* magazine found that only 6% of the respondents thought that chlorophyll would be a major advertising sales point for any product next year. Moreover, 55% believed that the material would be considerably less important than it is today. Here are two typical comments:

• From a man who forecasted a decline—"unless manufacturers of chlorophyll do something in the way of research to support the many claims, I look for the product to be seriously discredited within a year. Many scientists of note are challenging right now, as we all know."

• From an optimistic, but cynical spokesman—"Why not? Some dopes still believe in Santa Claus."

For the Shelf: Industry printing presses have been busy. Some recent products:

• A 20-page catalog of flavors and certified colors—from Dodge & Olcott (New York).

• A new Acrilan fact-book, to take the place of "Acrilan, Created by Man," published in 1951—from Chemstrand Corp. (Decatur, Ala.).

• A Directory of Contract Packers and Their Facilities, Second Edition—from the Packaging Institute (New York).

• A recipe book for saccharin (including a formula for "sugarless syrup": 24 saccharin tablets in ½ cup of water)—from Monsanto Chemical.

• A 106-page leatherette booklet on Witco chemical products—from the Witco Chemical Co. (New York).

• "The Chemistry of the Ferrocyanides"—from American Cyanamid Co.

FOR
QUALITY
CHEMICALS
IN
QUANTITY
SPECIFY

STAUFFER

- ACIDS
- AGRICULTURAL CHEMICALS
- BORAX - BORIC ACID
- CARBON BISULPHIDE
- CARBON TETRACHLORIDE
- CAUSTIC SODA
- METAL CHLORIDES
- SULPHUR CHLORIDES
- SULPHURS
- TARTRATES

STAUFFER CHEMICAL CO.

420 LEXINGTON AVENUE, NEW YORK 17, NEW YORK
221 No. LaSalle St., Chicago 1, Ill.—326 S. Main St., Akron 8, O.—
824 Wilshire Blvd., Los Angeles 14, Calif.—Apopka, Fla.—636 Cali-
fornia St., San Francisco 8, Calif.—P.O. Box 7222, Houston 8, Texas—
North Portland, Ore.—Weslaco, Texas.



MR. SOAPER!

If you're not selling detergents

you're missing 1/2 of the market!

With Detergent ALKANE you can double your sales potential!

You know that detergents are here to stay—already they comprise 50% of washing product sales.

If you're planning for the future, now is the time to get into the detergent market. It may be easier and less costly than you think.

Oronite can now offer you improved Alkane—the basic raw material used in making the highest quality synthetic detergents. Alkane is available at a consistent low price. In the past seven years, because of expanding production and improved technology, there have been many price decreases on Alkane. Thus Alkane assures you of a stable market price on your finished detergent product.

Our engineering service has a plant design to fit your needs. A large equipment investment may not

be required to sulfonate your own detergents from Oronite Alkane—possibly a great amount of your present equipment can be utilized. (Alkane is available in assured supply from three strategically located bulk terminals.)

Our technical assistance is available to you free of charge. Equipment prices, performance data, yields and all other technical information to show you how to make detergents profitably can be furnished on request.

If you are interested in entering the detergent market, or wish to see how economically you can convert your own plant to detergents, address an inquiry to any Oronite office. We will have a qualified representative contact you.



**"World's largest producer of
synthetic detergent raw materials"**

ORONITE CHEMICAL COMPANY

38 SANSOME STREET, SAN FRANCISCO 4, CALIFORNIA
30 ROCKEFELLER PLAZA, NEW YORK 20, NEW YORK
STANDARD OIL BLDG., LOS ANGELES 15, CALIFORNIA
600 S. MICHIGAN AVENUE, CHICAGO 5, ILLINOIS
MERCANTILE SECURITIES BUILDING, DALLAS 1, TEXAS

SPECIALTIES.



CANNED CURLS: Handy hair lacquers head for sales mark.

Hit with a Mist

Aerosol hair lacquers, tops in push-button personal products field, are mounting toward \$10-million retail sales this year.

Tripped up by exaggerated fire-hazard claims early last winter, sales have hit full stride again after fast corrective action by CSMA and producers.

Estimates put sales potential at \$25 million. New firms are reaching for a share of the profits.

With first quarter 1953 sales just tabulated, manufacturers of aerosol hair lacquers have plenty of cause for glee: sales are up 35% over last year's quarterly mark, and seem to be headed for a \$10-million total.

In the three years since their introduction, sales have spiraled up from about \$0.5 million to a solid \$6 million last year. Predicts one top packager: if the boom continues, the sprayed-on wave savers might out-sell home permanents, can reach a \$25-million yearly sales peak.

The lacquer's success has tempted in a growing crowd of producers. Recently, Nestle-LeMur (New York) stepped in with its Spraze; Revlon Products Corp. (New York) is test-selling its Fashion Net. And several top cold wave firms are readying products, too.

Fire Scare: But trouble very nearly crimped lacquer sales last winter—and narrowly missed giving the entire aerosol industry a black eye. The tempest centered about the possible

fire hazard in using the products.

First indication of the brewing storm came just before Thanksgiving. Papers in Buffalo and New York carried stories of hair spray "blowtorches"—stories that were picked up by the wire services and spread country-wide.

First countermeasures were taken by the Chemical Specialties Manufacturers' Assn., which hurried legal and technical experts to Buffalo. Aim: to prove the fallaciousness of the tests given the lacquers, and to demonstrate the willingness of lacquer makers to cooperate with fire departments by providing adequate labeling. This was followed by CSMA action at its December meeting (CW, Dec. 13, '52), where it was pointed out that the spray would actually extinguish a lighted cigarette—and that eight million units had been sold without a complaint.

Undermining: Despite the promptness of the action, it didn't quell the rash of city bans on the lacquers. From New England to Texas, a CSMA

team of legal counsel and producers' chemists had to meet with fire department officials to take remedial steps. And they discovered more than one incident where restrictions were imposed on the flimsiest evidence.

In one case, a city chemist in Texas ruled the lacquers had a 70 F flash point (it is actually about 135 F) because one component, alcohol, has an f. p. of 70 F. And there was at least one other case where complaint of the fire hazard in use of the aerosols was apparently "planted."

Along with all this came the oft-exhumed charges that aerosols are dangerous because they are pressurized. But after a month or two, the furor faded—longest ban was Philadelphia's 30-day black-listing.

Sales Tussle: Since the lacquers were introduced in 1950—Liquinet (Liquinet Corp., Chicago) was one of the first—the number of makers has multiplied,* now shows little sign of stopping. A glance at Du Pont's Aerosol Market surveys for 1951 and 1952 shows how business has mushroomed.

	Dealers stocking aerosol hair sprays	
	1951	1952
Dept. Stores	23%	63%
Drug Stores	21	80
Groceries	1	6
Variety (5¢ & 10¢)	9	14

Of the total sales of hair lacquers, the aerosols nabbed 58% at department stores, 39% at pharmacies, 32% at groceries, and 21% at variety stores, in 1952. Likely largest seller now is Spray Net, put out by Helene Curtis Inc. (Chicago), which the maker proclaims to outsell competitors 3 to 1.

Nearly all products offered for home use are retailed through drug and department stores as well as beauty shops. Some, like Air Net (Raymond Laboratories Inc., St. Paul, Minn.) are sold for professional use, and retail in hair dressing shops; Invisanet (Invincible Products Co., Chicago) is sold only for beauty parlor use.

Already, competition has started a small-scale price war. Small sizes—3-5 oz.—have been selling at \$1-1.75; large—up to 11 oz.—about \$1.50-2.50. But one maker has challenged the industry with an 11-ounce at \$1.

In the best position when it comes to price-cutting are the contract fillers, who are bound to profit by increased

*The list of products currently includes Lacquer Net (Artistic Beauty Supply Co., Los Angeles); Mystic Net (Killing Co., Bridgeport, Conn.); Twirl (Diane Winston, Inc., Chicago); Sta-Set (General Products Co., Chicago); No Net (Caryl Richards, New York); Sof-Set (4711 Co., Chicago); Topper (Gibbs & Co., Chicago); Charmist (Sandrohn, Inc., Chicago); Spray-O-Lac (Eaton Cosmetics, Chicago); Spraze (Nestle-LeMur, New York); Super Net (I. Pozner, Chicago).

CHEMICAL FINANCING

is NOT ALL we do

If you are considering new projects or Company acquisitions in your growth picture, perhaps we can be helpful even though your Company may not need financing.

For information consult:

Chemical Department

M. STUART ROESLER, Vice President

RICHARD B. SCHNEIDER, Vice President

Empire Trust Company

7 WEST 51st STREET, NEW YORK 19, N. Y.

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION



HIGRADE MURIATE OF POTASH
62/63% K_2O
GRANULAR MURIATE OF POTASH
48/52% K_2O
MANURE SALTS 20% K_2O Min.

UNITED STATES
POTASH COMPANY,
INCORPORATED
30 Rockefeller Plaza,
New York 20, N. Y.

SPECIALTIES

sales. Two of the leaders in lacquer packing are Geo. Barr, Inc., and Chemi-Form Corp., both of Chicago.

Soluble Solution: Most current formulations follow a stock pattern: a 50-50 mixture of Freons 11 and 12 and the fixative. The latter is usually a solution of shellac or modified shellac (6-7%), plus methyl methacrylate or other resin (2-4%), emollient oil (many tout lanolin), perfume, hexachlorophene, etc., in alcohol. At first the mixtures plugged the valves, but developments like nylon valve construction have pretty well eliminated this.

Because some women complained that the dried film was hard to remove—a water rinse won't do the job—many producers are researching water-soluble formulations.

First ones tried were hygroscopic, made hair tacky. But now it looks as if polyvinyl pyrrolidone will do the trick, and two new products, Style (La Maur Inc., Minneapolis) and soon-to-be-introduced Aqua Net (Raymond Labs), are thought to be of this sort.

But water-soluble wave lacquers are, generally speaking, more expensive than shellac types, while the simple water-based formulations are difficult to package in present metal aerosol units. Whether consumer demand will force a complete change-over to the new products can't be foretold. But with prospects for \$25-million sales, makers will likely be nimble to modify formulation to meet consumer desires.

Dow Corning Decade

Commemorating its 10 years of production of silicones, Dow Corning Corp. (Midland, Mich.) has just introduced several new silicone products. Among them:

- Pressure-sensitive adhesive, DC XC-270, which will stick to a variety of material, including polyethylene, tetrafluorethylene, and even silicone-varnished glass and silicone rubber. It is claimed to have adhesive strength comparable to that of conventional glues, and to retain its strength over a temperature range of $-55^{\circ}F$ to $300^{\circ}F$.

- Water-repellent treatment for leather, claimed to impart good repellency without altering the appearance feel, or the "breathing" characteristics of leather. Tabbled DC 1109, it's applied by dipping or tumbling in a solvent solution, can be colored if desired.

- Water-soluble water-repellent, DC XS-1, for paper, clay and concrete. Made of the sodium salts of certain silanols dissolved in water, it

ON-STREAM AT MORGANTOWN

MATHIESON

ETHYLENE D

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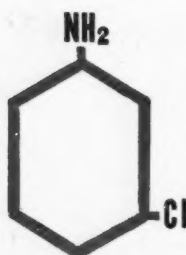
The ethylene amines are extremely reactive chemicals. They form salts and coordination complexes, and undergo most of the reactions of aliphatic amines, including acylation, sulfonation, alkylation and many others. They react with fatty acids, ethylene oxide, aldehydes, carbon dioxide and carbon disulfide, to give chemical intermediates and useful end-products. The ethylene amines and certain of their derivatives can be converted into cyclic compounds of commercial and research interest. Available in sufficient quantities for commercial application. Samples and complete information on request.

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- Silicone-asbestos-glass slot cell liner, for use in magnet construction. It is claimed not to delaminate when formed, and to possess insulating qualities for use in class-H electrical equipment.

- Magnet wire insulating enamel, DC 1360, said to have same life expectancy at 200 C as organic enamels at 105 C, as well as equal flexibility and scrape-resistance.

- Silicone resins for extending the life of protective coatings. Paints formulated with the new resin, DC 805, are said to have twice the thermal life at 600-1000 F as coatings formulated with previously offered silicones. DC XR-807 is another coating-resin development—an air-drying modified silicone-alkyd resin. For water repellent masonry paints, DC 129G resin is now being produced.

All-Glass Aerosol

There's competition now for Canco's fiber-and-glass aerosol unit; Wheaton Plastics Co. (Mays Landing, N.J.) is introducing a plastic-coated bottle aerosol.

The new container, offered in 2- and 4-oz. sizes, is particularly designed for hard-to-package, corrosive products. Unlike the American Can Co.'s package (CW, Jan. 31), the Wheaton product operates with ordinary Freon or Genetron 11 and 12 mixtures at approximately the same pressure as the familiar beer can types.

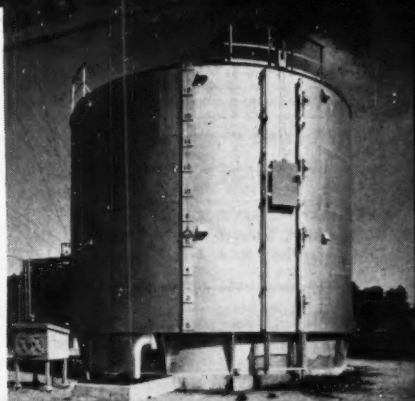
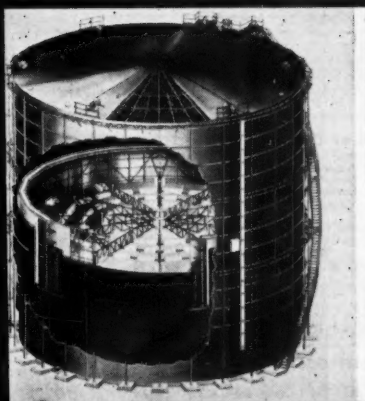
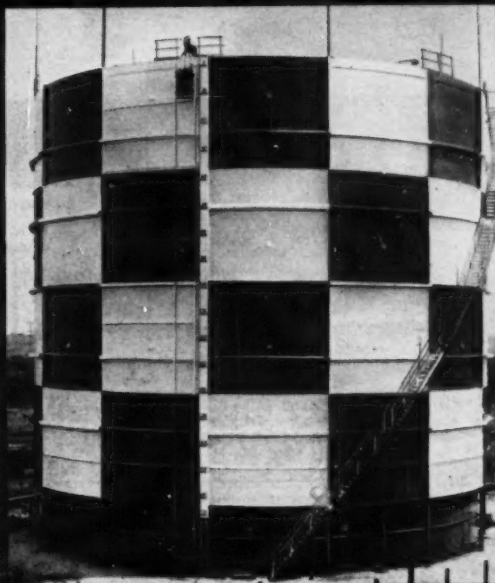
Wheaton is keeping silent as to the formulation of the plastic sheathing, which is the key to the unit. It is described as a rubbery, opaque coating (liquid level can't be seen) about a millimeter thick. It is flexible, offers a cushioning effect, also provides enough tear resistance to retain all the glass if the bottle should break, says Wheaton. The coating is available in several colors, and may be labeled either by direct printing or by adhesives.

Corrosion Proof: Top selling point of the new unit is its resistance to corrosion. Water-based formulations have been deemed too corrosive, generally, for the metal spray cans; the glass products seem to offer the answer. Cosmetic products are particularly well-suited for the new package. Indicative of this is the order for half-million units placed by Nestle

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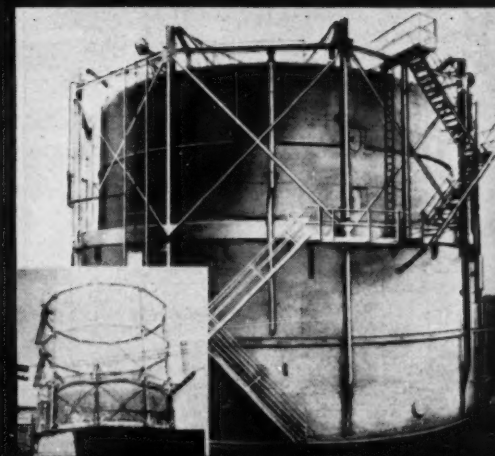
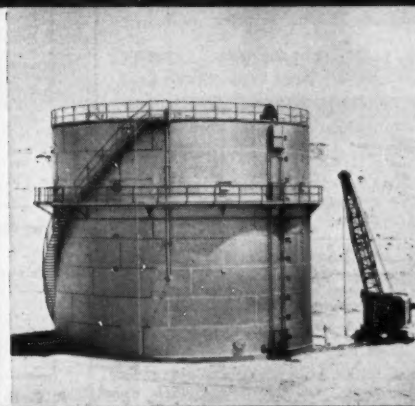


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CHEMICAL WEEK

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SPECIALTIES

La Mur (New York)—producer of the hair lacquer Spraze (see above).

Wheaton prices its 2-oz. container at 10¢ in half-million lots; the 4-oz. container sells for 13¢. The firm is not recommending any particular valve, and indicated that any one of several fillers can load the new units.

Wheaton Plastics Co. is an independent company set up by owners of the nearby Wheaton Glass Co., Millville, N.J. Wheaton Glass provides the bottles, which Wheaton Plastics coats.

Cold and Dry: A new desiccant, trade-named An-Drite, is the factor in a new refrigerant drier developed by Ansul Chemical Co. The new unit, Ansul T-Flo, can be installed in almost any machine where excessive moisture can affect performance. An-Drite, on which Ansul is seeking a patent, is gelatinous aluminum oxide hydrate in the form of 1/8 in.-diameter spheres. It is said to be effective at temperatures ranging up to 140 F. T-Flo will sell through refrigeration wholesalers only.

Bottles Dropped: Reflecting the April

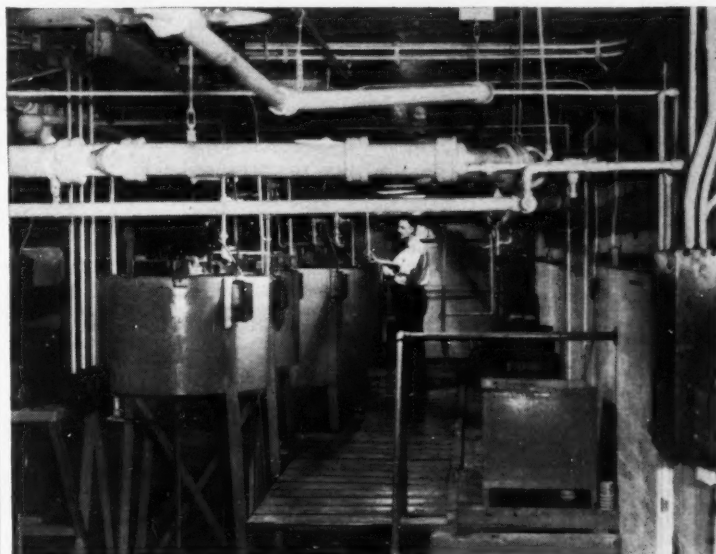
15 drop in the price of polyethylene, Plax Corp. (West Hartford, Conn.) has lowered the price of its polyethylene squeeze bottles by 2%.

Maskers: Dodge & Olcott, Inc. (New York) is introducing a new series of odorants for dip silver cleaners. Called Diparomes, they are available in several fragrances. Diparome P is said to cover the hydrogen sulfide odor released when the cleaners are used.

Next to the Skin: Following up on the the American developments in textile use, a well-known Italian firm, S.F.-T.E. (Turin) will be utilizing chlorophyll derivatives in elastic fabrics.

Ad Boost: Joining the department stores featuring chemical products and specialties, Carson Pirie Scott (Chicago) took several pages on a recent Sunday to trumpet the advantages of using numerous specialties, paints, and the like.

Vet Aid: An oral treatment for ketosis, a metabolic disease of cattle, has been worked out at Cornell Univ. The treatment makes use of sodium propi-



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Boston 16	350 Park Square Building, Hubbard 2-7160
Detroit 26	856 Penobscot Bldg., Woodward 2-1793
Pittsburgh 22	738 Oliver Bldg., Atlantic 1-4707
St. Louis 8	3615 Olive St., Continental Bldg., Lucas 4867

SPECIALTIES

onate, and Du Pont is now selling it to animal health goods dealers and veterinarians. Dosage is about half a pound of the propionate per day per animal, given in large tablets, or in liquids.

Fast Worker: Fels & Co. is introducing a new instant granule version of its Fels-Naphtha Soap. Packaged in the usual red and green box, it's designed for washing machines.

Fels is still test-marketing (in Trenton, N.J.) its Rol, a liquid detergent for dishwashing, may go national after possible changes in packaging.

For Footwear: General Shoe Corp. is planning a 50,000-sq.-ft. plant in Nashville, Tenn., for the manufacture of shoe finishes, specialized adhesives, and the like—some for its own use. The firm's subsidiary, General Wax, long produced the chemicals for the parent company, but boosted needs call for enlarged facilities, and General Wax will be combined with S&F Blacking Co. (Brockton, Mass.) to form S&F Chemical Co., Inc. The new plant and equipment will cost better than \$1 million.

Three and One: In what it terms the first commercial combination of a broad-spectrum antibiotic and the sulfapyrimidines, Lederle Labs, division of American Cyanamid Co., is marketing Aureomycin Triple Sulfas. The tablets, suggested for treatment of dysentery caused by the shigella group, and gonococcal infections, contain aureomycin, Sulfadiazine, Sulfamerazine, and Sulfamethazine.

Mixer: Peerless Printing Ink Co. (Philadelphia) is building a \$31,500 mixing plant in its home city.

Polish Plant: Due in August 1 is the Simoniz Co.'s new 130,000-sq.-ft. plant at Kankakee, Ill., employing about 70-80 people.

Vinyl Breather

Goodyear Tire & Rubber Co. (Akron, O.) is now selling a new vinyl plastic film that it "rain proof," yet has a high rate of air transmission.

The new film, tabbed Porolated Vinylfilm, is easily fabricated on standard machinery, although it has about seven times more moisture-vapor permeability than previous vinyls. Goodyear claims the new film has thousands of vents per sq. ft., yet will hold water. It is suggested for rainwear, infants' wear, furniture slipcovers, garment bags.



The toughest three-letter word in business

"But . . ."

The word a man uses when he starts by nodding yes and ends by saying no.

"But . . ."

The word on a Multiwall buyer's tongue just after he's said, "Well, as long as we order by specification, I guess one brand's as good as another . . ."

Executives who purchase more than 85 per cent of all Multiwalls have a big BUT there.

They testify* that there are many other considerations. Among the most important, the reputation of the manu-

facturer. They judge him by his record of reliability, his effort to meet delivery dates, his willingness to give a full measure of service.

We welcome the challenge of the toughest three-letter word in business. We believe the attention big buyers of Multiwalls pay to the *extra* factors—dependability, for instance—has a lot to do with their giving Union a greater proportion of their Multiwall business.

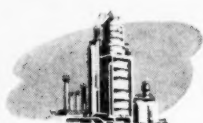
More so every day . . .

IT'S UNION FOR MULTIWALLS

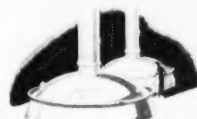


*August, 1951 research study.

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Anhydrous Hydrofluoric Acid

- As a catalyst in alkylation, isomerization, condensation, dehydration and polymerization reactions.
- As a fluorinating agent in organic and inorganic reactions.
- In production of fluorine.
- As a solvent for desulfurization.

Uses of

Aqueous Hydrofluoric Acid

- For polishing, etching, frosting glass.
- For pickling certain metals.
- In electroplating.
- For cleaning stone, brick.
- In breweries to control fermentation.
- For dissolving ores; ore flotation.
- In laundry soaps.
- For cleaning iron and steel castings.